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ANNUAL MEETING OCTOBER 11-16, 1953, CHICAGO

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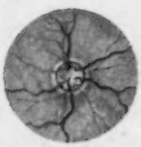

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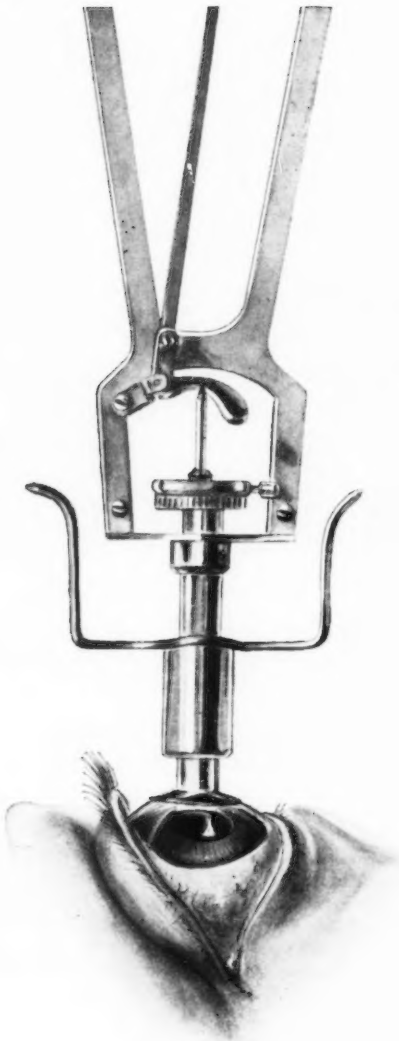

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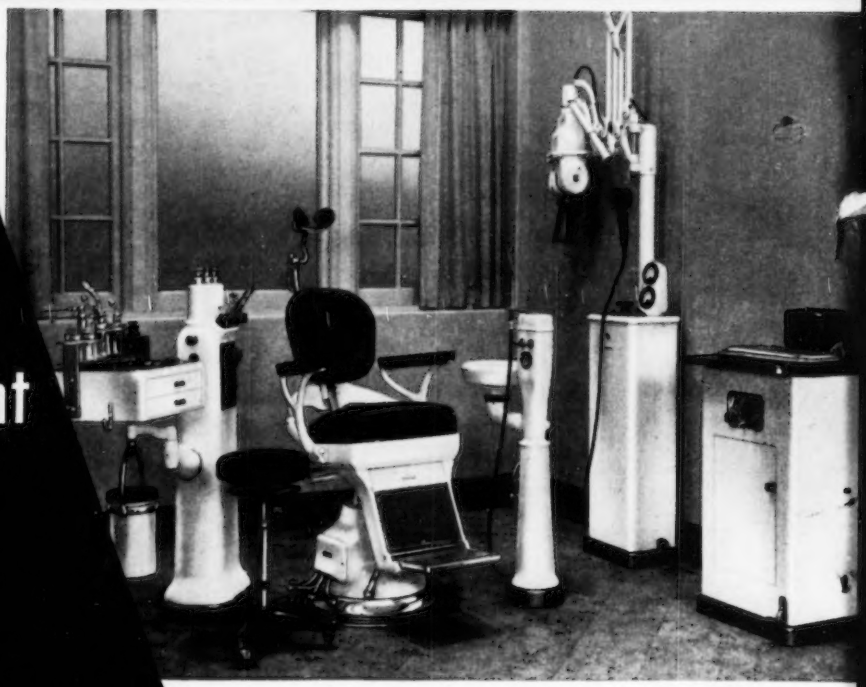

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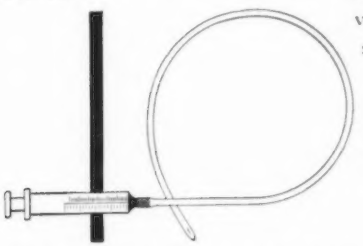

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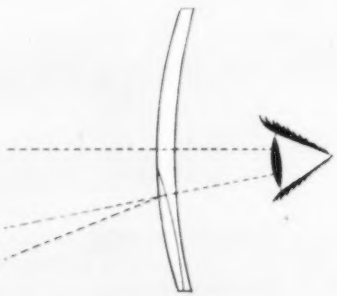

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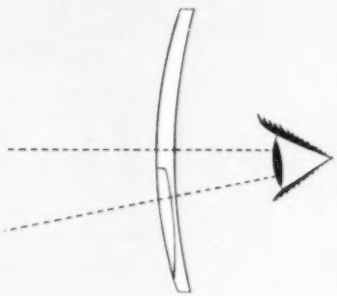

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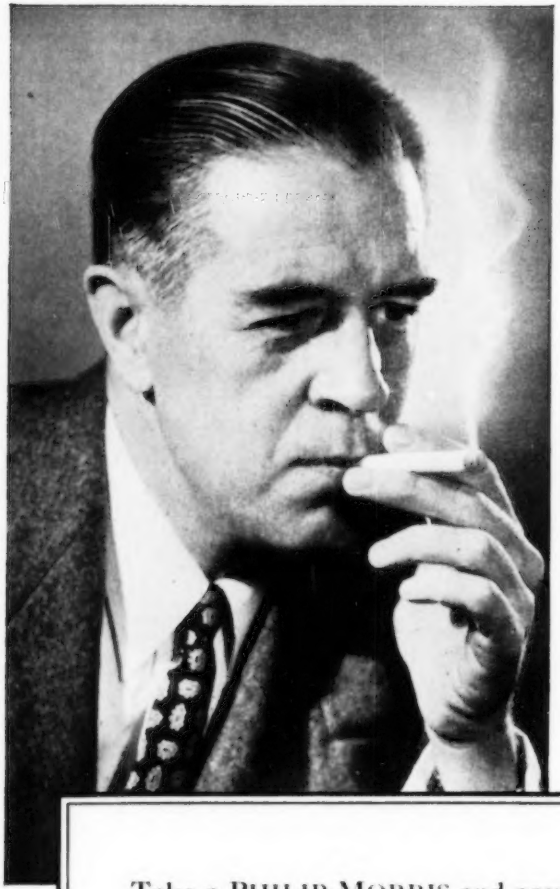

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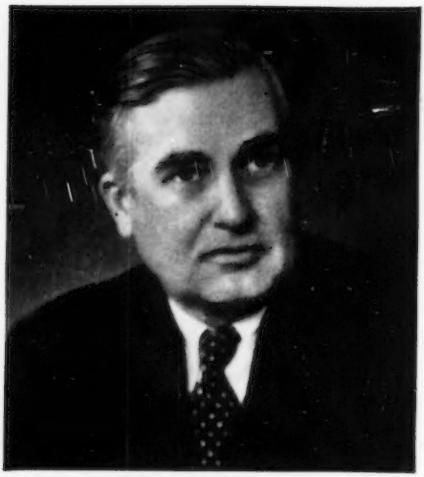

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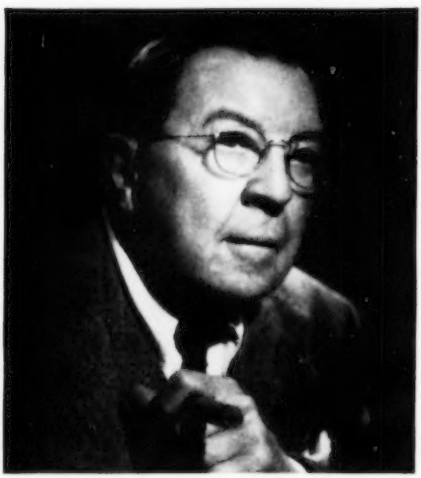

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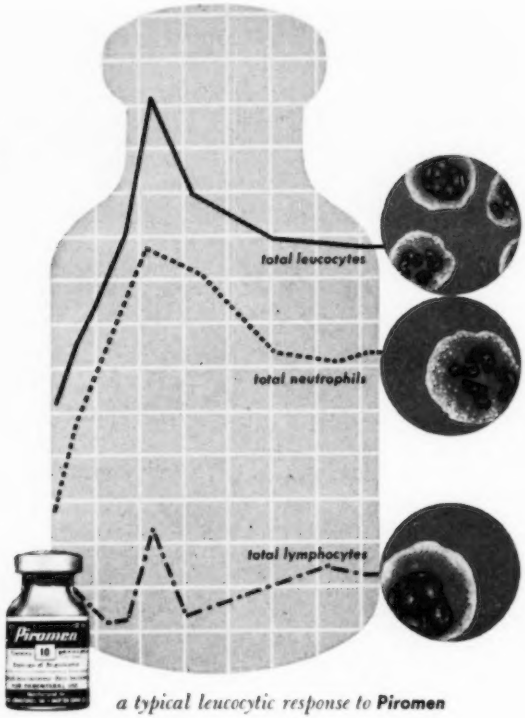

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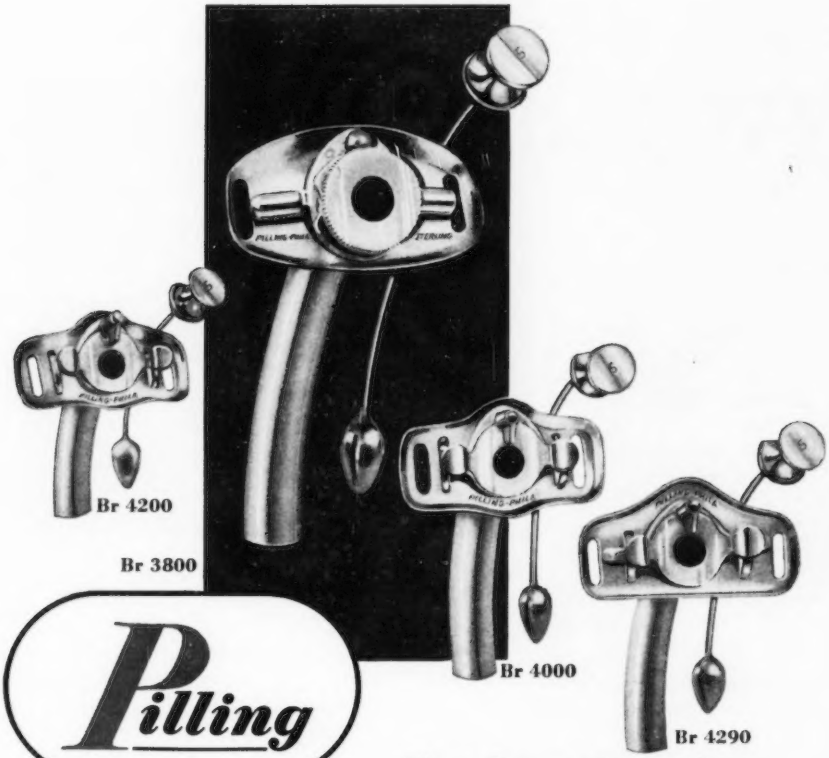

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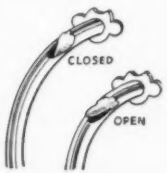

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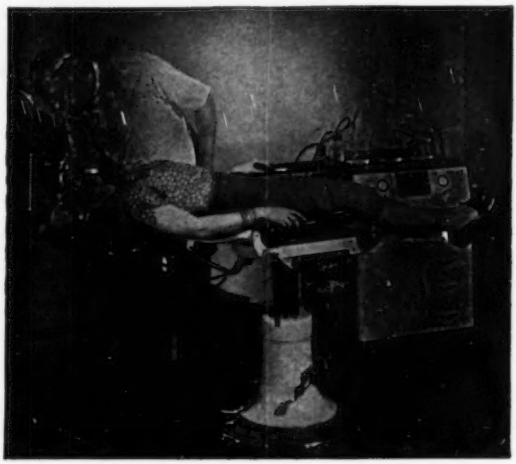

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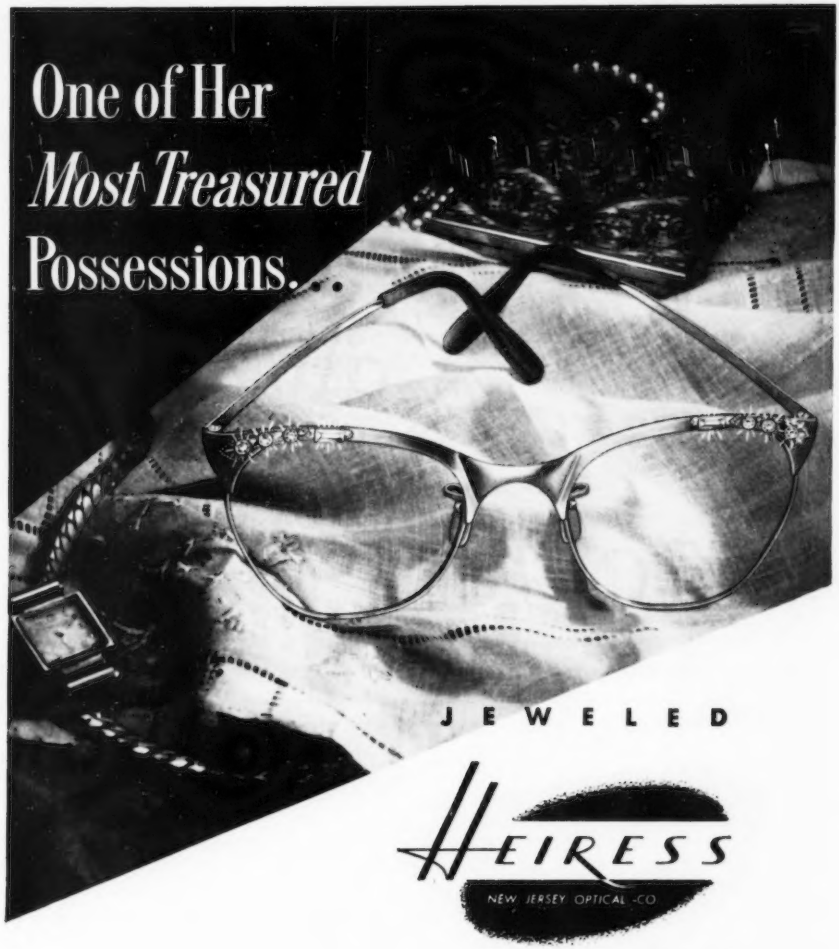

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Address of the President

"AS IS YOUR PATHOLOGY, SO IS YOUR PRACTICE"

JAMES MILTON ROBB, M.D.
DETROIT, MICH.

THIS statement I found many years ago on the blackboard of the senior class in the Detroit College of Medicine and Surgery, now the Wayne University College of Medicine. In the intervening years, as a practitioner of otolaryngology in an industrial urban center, the import of the quotation has continually impressed me so that when the theme of "pathology" was chosen by the council for this Fifty-Seventh Annual Meeting of the American Academy of Ophthalmology and Otolaryngology "As is your pathology, so is your practice" seemed particularly fitting as the subject of my few words to you as president. I shall endeavor to point out the value of pathology to the practitioner of medicine, particularly in the fields of ophthalmology and otolaryngology, for in the medical care of a patient the physician must have in his mind a picture of the pathologic process which is occurring in the disease. Logically, the more accurate this determination the better the medical care.

The study of pathology in its relatively short life has grown from an investigation of the changes found in the human body after death and their correlation with the signs of disease which had been observed during life to include almost anything which had to do with disease, etiology, pathogenesis, morbid anatomy, microscopic histology, parasitology, functional changes, chemical alterations, indeed any topic except treatment. The romance in the development of pathology will be vividly presented to you this morning by Dr. Flinn F. Morse, the pathologist, of Harper Hospital, Detroit. My discussion will be limited to the use of the pathologist in the diagnosis and treatment in the practices of ophthalmology and otolaryngology.

The pathologist is probably the most important man on the staff of any hospital and should be the close friend of every member of its staff for counsel and advice. There was a time—not too many years ago—when he was usually found in the basement of the hospital, smelling of formaldehyde. Now he is on the top floor, in the best wing of the hospital near the operating rooms, and maintaining the control and good judgment of medicine as well as surgery. The surgeon should know something of the problems of this pathologist in order that proper cooperation may be established. Then, he will not send for biopsy, macerated specimens of insufficient size, burned tissue, the result of cautery, nor granulation tissue, which is more easily removed than the tumor mass.

At the beginning of the century the real problem confronting the man particularly interested in surgical effort was the development of the best technic, the best anesthesia, the best sutures, the best control of hemorrhage, in fact everything that related to taking the patient off the table in good physical shape. That he had to have a knowledge of

Presented at the Fifty-Seventh Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 12-17, 1952, Chicago, Ill.

anatomy is too trite to mention, but his need for the understanding of pathology, which is of equal importance, only too recently has been emphasized. Who among us has seriously interested himself in pathology except in the second year of medical school and in preparation for his examination by the board? It is interesting in this regard to note that in the presidential addresses since the beginning of the Academy, a period of fifty-six years, as far as I can determine only three times has pathology received serious consideration. Today, it is the whole theme.

We all love the song of a bird, but some knowledge of ornithology would increase that pleasure. There is nothing more beautiful than a properly cut and stained section of tissue. There is nothing else in medicine from which we can get as much pleasure with as little responsibility as from the examination of a beautifully stained slide. Whenever we sit in an audience before which there is a discussion of the cellular content of tissue who of us does not wish for the ability to get the mental picture of the cell structure, of squamous cell carcinoma with the advancing and invading cells like packs of foraging wolves, of epithelioid or giant cells of tuberculosis, or of the vessel walls thickened by endothelial proliferation as seen in syphilis? Only some knowledge of pathology grants this privilege. So, in our daily practice, be it ophthalmology, otolaryngology, or both, only some knowledge of pathology presents the true picture of the case at hand on which to base our diagnosis and treatment.

Does the appearance of the silvery artery of the retina bring knowledge of the vascular bed of the kidney?

Have not the advances which are being made in our understanding of collagen diseases made us acutely aware of our previous lack of knowledge of these conditions when we see a case of uveitis?

In approaching a tracheotomy one must realize the changes that follow bronchial obstruction as seen in atelectasis, pulmonary interstitial emphysema, pneumomediastinum, and even pneumothorax.

Without the knowledge of pathologic changes that occur in chronic mastoiditis the reason for the operative attack and thoroughness with which it must be done can hardly be appreciated.

If one is unaware of what carcinoma can do in invading a larynx and at times glands of the neck, the need for laryngectomy and neck dissection cannot be properly evaluated.

One is seriously handicapped in the care of a bronchiectatic cavity without some awareness of the pathologic changes as represented by infection, necrosis, cavity formation, and dissemination to the opposite lung and brain.

Colonel J. E. Ash of the Medical Corps of the United States Army has expressed better than I ever could this fundamental "As is your pathology, so is your practice" when he has said:

> It may be a bit difficult for the clinician to develop an interest in the basic sciences of his specialty but the effort expended on them, and particularly pathology, will be found definitely worth while. Pathology is the foundation of an intelligent understanding of any disease. This effort may not be reflected in the cash register total but it will pay dividends in satisfaction and in the increased facility of interpreting the clinical picture. There is no question that the professional standard of the clinician is based on the thoroughness of his knowledge of the basic sciences and that the insistence of the special boards on a knowledge of pathology, in which the Academy has been the leader, has been a big factor in raising the professional standards in this country.

It is fitting, therefore, that we should recognize these stalwarts of the Academy who have been the vanguard in this battle for better pathology. Some of them are with us on the platform this morning and will help dramatize this

progress of pathology of which my few words are but the prologue.

More particularly has the Academy made possible a detailed study of histopathology in the fields of ophthalmology and otolaryngology by the compilation and publication of its two atlases. Dr. William Benedict will trace for you the development of these, the possession of which in my opinion is a must for each and every one of you.

To him, to his executive staff, to each and every member of the Academy I am deeply grateful not only for choosing me as your leader for 1952 but also for the infinite help in bringing my tenure of office to an interesting and successful conclusion.

Address of the Guest of Honor

* * *

THE WIDENING ASPECTS OF OTOLARYNGOLOGY

FLETCHER D. WOODWARD, M.D.
CHARLOTTESVILLE, VA.

THERE are certain events in the lives of most men which cause them to pause and to ask themselves, "Can this be really me?" And among these events which cause such contemplative queries are marriage, the birth of your first child, the birth of your first grandchild, and finally, the news that you have become a guest of honor. Then you know, "It is later than you thought." Whether your selection was due to the orderly process of years and fruitful work, or was precipitated by your coronaries, is immaterial. In either case, it is a time for serious reflection; and I assure you that when such an honor has been bestowed by such an organization as the American Academy of Ophthalmology and Otolaryngology, it is also a time for deep humility as well as sincere appreciation.

During the busy years of teaching, reading, studying, writing, and frequent attendance and participation in medical meetings, our goal may become somewhat obscured. It is only after one drops out of the forefront of the stampede and the dust has settled, that he can see his objective clearly and evaluate his means of attaining this goal, which in my case was by working within the confines of an old and honorable specialty, called otolaryngology.

When one then hears and reads that otolaryngology is a dying specialty, he is amazed; for never in its long history has its scope been so broad, its field so fascinating and so full of hope in helping him attain his objective, the ultimate prevention and cure of disease and its related problems.

His mind races back through the years and recounts the many fruitful blessings which were bestowed on Medicine's progress by otolaryngology, and so well recounted by Fenton, Mackenzie Brown, Lierle, and others. He then notes that its cause is also well championed by a number of critical and analytical papers by Boies, Lierle, McCas-

Presented at the Fifty-Seventh Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 12-17, 1952, Chicago, Ill.

key, Hill, Hoople, Robb, and many others. So, in response to such a thoughtless statement, that otolaryngology is a dying specialty, it merely becomes necessary to enumerate its present-day widening and fascinating aspects, in order to convince anyone of the fallacy of such a statement, and also to convince one that no specialty offers greater opportunity of attaining his goal than does otolaryngology.

I admit that within the memory of most of us, otolaryngology was at one time largely concerned with anatomy, the local application of a few drugs for symptomatic relief, and robot-like surgical procedures employed mainly to obtain certain mechanical results such as the drainage of a suppurating mastoid or nasal sinus or the establishment of an adequate nasal airway. The other common application of surgical procedures was to satisfy wishful thinking in the eradication of so-called foci of infection and the indiscriminate removal of tonsils and adenoids. If it is this phase of otolaryngology and its adherents that are dying, then let us say, "The King is dead. Long live the King."

The role of the autonomic nervous system in disease occupies a position of great prominence throughout medical literature today, because its delicate adjustments maintain homeostasis and its derangements disturb physiologic processes in many ways. And since the nose is more exposed than most organs to these stimuli, and its responses are so readily observed, it is only natural that we have become intensely interested in allergy as well as in pharmacology, endocrinology, psychiatry, and general medicine; for no one in the practice of medicine is in a better position to witness and to evaluate these altered responses than we are.

Since there is no such thing as otolaryngology without head, neck, and thoracic extensions, and since these areas frequently reflect other and remote disorders, our interest and knowledge must be broad in order to cope with them. Among such disorders are the acute and chronic infections of the ear and entire respiratory tract, which require highly technical, diagnostic, therapeutic and surgical procedures to combat them.

The diagnosis and management of neoplastic disease require an intimate knowledge of both physiology and pathology, as well as a knowledge of the principles of radiation therapy, as manifested by the roentgen ray, radium, radon, and the radioactive isotopes. To eradicate these tumors, a wide range of surgical procedures must often be designed, from the simple excision of a benign tumor to an extensive one including both the local growth and regional nodes.

Various plastic surgical procedures on the ear, nose, face and neck are frequently necessary to correct defects due to surgical procedures, disease, trauma, or congenital causes; and since an intimate knowledge of the local anatomy and physiology is necessary, who is better equipped to do this work than the otolaryngologist? The same holds true for peroral endoscopy. If we are better surgeons and broncho-esophagologists than others, there need be no fear of any serious invasion of our field, because there is such an art in all these procedures that the casual invader usually retires in disorder.

The response of the sympathetic or adrenergic and the parasympathetic or cholinergic divisions of the autonomic nervous system to allergic stimuli has been studied so frequently as vasomotor rhinitis and asthma, that it is only proper that many similar responses should be considered to be on the same basis. These include Ménière's disease, deafness, tinnitus, and vertigo, and the head pains of vascular origin, from the

myalgias of the postcervical and pharyngeal muscles to migraine.

The study of these allergic problems in one's own field can very well lead to the theoretical application of the allergic phenomenon (i.e., arteriolar spasm, ischemia, anoxia, capillary and venular dilatation, followed by an escape of fluids into the surrounding tissue spaces and histamine or "H" substance release) to the problems of other related and widespread diseases such as arthritis, certain collagen diseases, hypertension and atherosclerosis when the vaso vasorum becomes the shock organ.

Since the term "allergy," meaning altered reactivity, is such a broad one, I propose that for better definition it be divided into Allergy-I, when speaking of antigen antibody or immunologic allergy, Allergy-P, when speaking of physical allergy, and Allergy-S, when speaking of emotional or stress allergy.

Since the stimuli from these three sources are mediated through the autonomic system by its humoral and neural connections and are expressed in the shock organ by the same vascular reaction, why could not these diseases of obscure etiology be explained by one's allergic sensitivities, rather than by his body type and zeal for work, as has so often been proposed? It is yet to be proved that hard work itself has ever harmed anyone.

Since the great majority of cases of essential hypertension are still of unknown etiology, why could not the widespread sensitization to milk and milk products be the cause of a slowly developing arteriosclerosis, caused by the allergic response of the vaso vasorum to frequent, mild and prolonged exposure to such an antigen? And why could not the advanced condition of atherosclerosis be further induced by frequent exposure to more explosive antigen antibody reactions to other foods such as chocolate, nuts, and wheat, for instance, as well as the stimuli from Allergy-P. and Allergy-S.?

If this hypothetical idea be reasonable, it should not be difficult to prove, if it received the efforts of the cardiologist, biochemist, pathologist, and allergist; and if true, the prevention and treatment of what is today the leading cause of death and disability could be conducted along sound therapeutic lines. The ophthalmologist, by a study of the blood vessels of the posterior and anterior segment of the eye, by means of the biomicroscope and photographic enlargements from conventional and television camera pictures and the use of colorized, polarized light, as employed by Dr. Vishniac, should be able to detect early pathological vascular changes, of both diagnostic and therapeutic value.

The freedom of the Eskimo from vascular disease on his fat diet, and the Chinese on his rice diet, as well as the low incidence of coronary heart disease in the European occupied zones during the last war seem to point more toward the lack of milk and milk products in their diets as a factor than to the absence of fats and cholesterol, as has been proposed.

To sum up, it looks as if milk and milk products may be a nutritional allergic time bomb; other and more explosive antigens, the trigger mechanism; and cholesterol and the large lipid molecules, innocent but foreign bystanders, which get caught in an already diseased and atheromatous artery and innocently occlude the restricted lumen and produce thrombosis.

The otolaryngologist also frequently sees many functional disorders, as manifested by alterations of motor and sensory nerves as well as by those of the autonomic nervous system; and with a basic knowledge of the mechanism of these functional disorders, he can frequently relieve them without calling for help from his overworked colleagues in

psychiatry and speech therapy. The proper balance of work, play, sleep, rest and responsibility, rather than sexual conflicts, will be found to be the answer to most of such disorders. However, when a major psychosis is suspected, he should promptly refer such a patient to the psychiatrist; or if the speech disorder calls for more skilled and specialized knowledge in functional disorders, he should promptly call on the speech therapist for assistance.

The otolaryngologist should also acquire a basic knowledge of dentistry and orthodontia, which knowledge is of particular value in the treatment of the temporomandibular joint syndrome, and in the repair of maxillofacial and mandibular fractures.

When it is recalled that the majority of the drugs used today were unknown ten years ago, and since no other specialty requires such a broad and intimate knowledge of bacteriology and of chemotherapeutic and antibiotic agents as otolaryngology, we must be constantly alert in order to employ these drugs to the best advantage. We must also be alert to understand and use the many other new drugs being presented so rapidly, especially those whose action concerns the autonomic nervous system at various levels. Never have the drug houses had so much to offer, never have they presented their products in a more attractive and educational way, and never have their detail men been so welcomed by the busy physician.

The American Board and the Academy should both be commended for their leadership in education and their elevation of standards; the Academy also for its humanitarian interests as manifested by the establishment, among others, of the Committee on Conservation of Hearing, whose efforts have already had a far-reaching effect in aiding many institutions in establishing departments of audiology, and states, in the better support of their schools and care of their citizens, both adults and children; and also industry, in its search for quieter machines and sound-proofing methods.

If the Academy should also appoint a committee to set up minimal standards of vision and hearing as a guide to the A.M.A. Committee and state police officers in examining prospective automobile drivers, and also lend its support to the A.M.A. Committee in its efforts to establish tests for drunkenness, minimal physical requirements, and a better design of automobiles; then it could again be praised for its humanitarian interests.

The present criteria established for the selection of those to enter resident training, and for the instruction of those in resident training during their three years' service, are most adequate.

However, only those institutions meeting these requirements should be approved. Reclassification would no doubt reduce the number of available residencies, but at the same time those trained in properly approved hospitals would be more capable of taking care of the responsibilities of the broadened field of otolaryngology as it exists today. In addition to the approved three-year residency, certain teaching hospitals, equipped for more advanced work and research, should provide an additional two-year fellowship for those whose main interests are in research and teaching.

The greatest criticism of otolaryngology today is its lack of interest in teaching, at both the undergraduate and graduate levels. Its status today and its future lie in its awareness of this fact and its determination to correct it; and of these two duties, the most important is the teaching of the undergraduate student, for his knowledge of, his respect for, and his interest in otolaryngology are determined at this level. And when

it is realized that twenty per cent or more of the daily work of the general practitioner concerns disease of the ear, nose and throat, and respiratory tract, as determined by surveys in Maryland, Iowa, and Minnesota, it is obvious that more time should be allotted to teaching in this field, especially in the first and second years of medical school.

As an example of this neglect, I recently saw a schedule of weekly interdepartmental clinics for both third and fourth year students, in one of our better medical schools, with what I believe is a better than average department of otolaryngology. The subject of headache was assigned to a neurologist with no clinical experience in eye or nasal space disease; the subject of chronic bronchitis and bronchiectasis, to an allergist who had never passed a bronchoscope; the subject of sore throat, to a microbiologist without adequate clinical experience in examination of the nose, throat and larynx, and the detection of obscure painful disorders, from allergic myalgias to malignant ulcerations; the subject of sinus disease, to an allergist who had never so much as irrigated a maxillary sinus. Is it any wonder that otolaryngology is going through a period of soul searching today? It is our fault that such conditions exist. Such clinics should really be called Will Rogers Clinics—that is, they are held by men who only know what they read in the papers.

Finally, I would like to repeat that the scope of our specialty is not only wide but widening. Our faults and the remedy are understood; and if the cure of hard work and responsible teaching is employed, there will always be an otolaryngology.

CONSERVATION OF FUNCTION IN SURGERY OF CANCER OF THE LARYNX: BASES, TECHNICS AND RESULTS

Part I. Uruguayan Technics

JUSTO M. ALONSO, M.D.
MONTEVIDEO, URUGUAY

WHEN we treat a patient with cancer of the larynx we must try, first, to save his life; second, if possible, to conserve the functions of the organ. I have tried to develop methods which make possible the extirpation of tumors which do not involve the glottis without extirpating the vocal cords. These tumors are, with respect to the glottis, situated laterally (pyriform sinus), above (epiglottic vestibule), and below (subglottic). I shall not speak of any procedures considered classic or generally accepted.

TUMORS OF THE PYRIFORM SINUS (PARTIAL VERTICAL LARYNGECTOMY)

The alae of the thyroid cartilage are like the two covers of a book opened backward. They protect the larynx and the hypopharynx like a shield. The anterior and medial portions of the thyroid cartilage are related to the larynx, its lateral portion to the pyriform sinuses. Tumors of the pyriform sinuses are generally removed along with the larynx. Trotter made progress toward conservation of function in the treatment of these tumors. Orton further modified this technic. I am trying to work out a technic which preserves laryngeal function and which may be suitable to all the tumors of the pyriform sinus which do not invade the larynx deeply.

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FIGURE 1.

Technic

A vertical skin incision is made beginning at the superior border of the thyroid cartilage and ending at the inferior border of the cricoid cartilage, situated one centimeter from the median line, towards the involved side (fig. 1). From the upper extremity, another incision, slightly curved, passes backward and upward, curving around the angle of the mandible. From the lower extremity of the vertical incision, another incision curves downward and backward, reaching the anterior border of the sternocleidomastoid muscle and following it downward to the sternum. Skin, cutaneous muscle (platysma) and

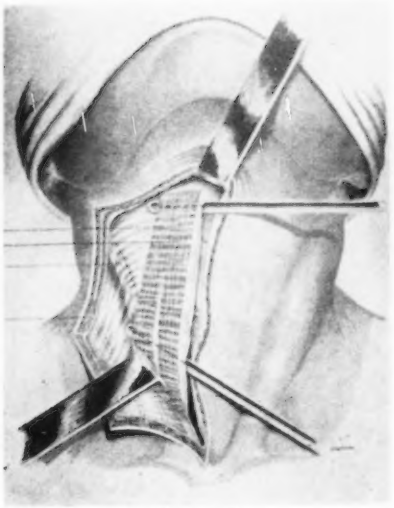

FIGURE 2.

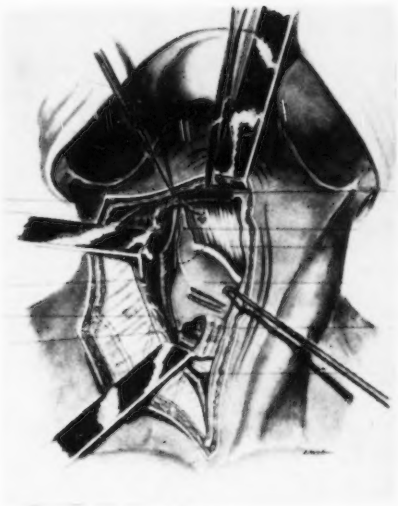

FIGURE 4.

superficial aponeurosis are cut and the whole flap (which includes the sternocleidomastoid muscle) is reflected; thus the large vessels are reached, which permits extirpation of lymph nodes when necessary. All the structures which cover the corresponding ala of the thyroid cartilage are then removed (figs. 2 and 3) and the superior cornu is likewise removed (fig. 4). In cases with marked upward extension, the corresponding half of the hyoid bone is removed as well, as is done by Trotter.

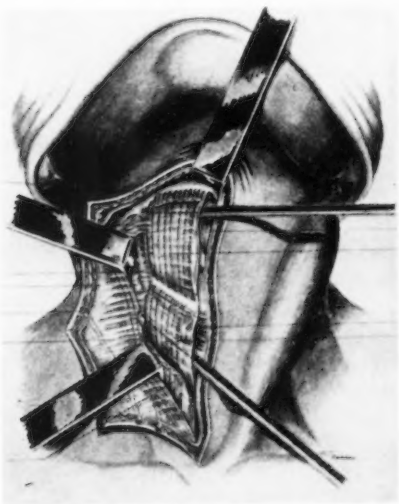

FIGURE 3.

The pharynx is opened at the site of the superior cornu of the thyroid cartilage, now removed (fig. 5), which permits the tumor to be seen and palpated. The tumor may (a) occupy the lateral wall of the pyriform sinus, (b) its anterior angle or (c) its median (laryngeal) wall, and in this case it may involve only the mucosa or it may invade the larynx.

In a case of the first type, the thyroid cartilage is sectioned, beginning above near the thyroid notch and passing downward and outward to the inferior cornu of the thyroid cartilage (fig. 6). We thus arrive at the angle of the pyriform sinus and there the mucosa is incised. The hypopharynx is carefully ex-

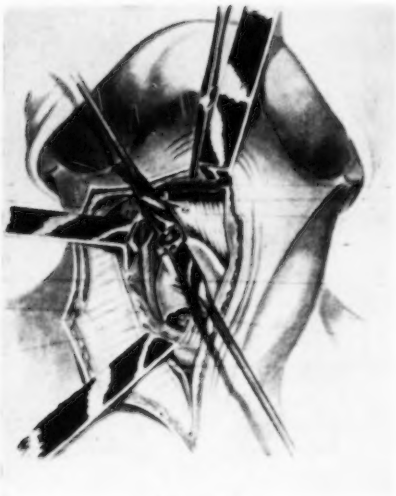

FIGURE 5.

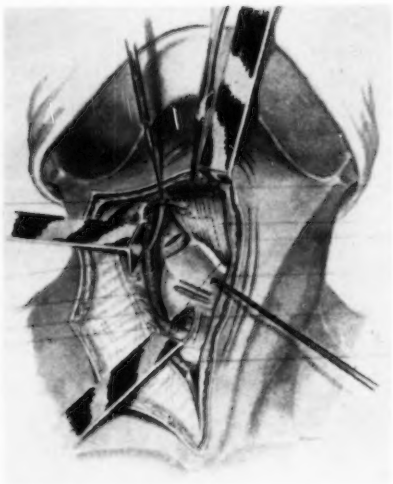

FIGURE 6.

amined and the ala of the thyroid cartilage is removed along with the tumor (fig. 7). If the tumor occupies the angle of the pyriform sinus or its median wall superficially, the incision of the cartilage is begun above in the midline and is carried downward and somewhat outward to arrive at the inferior border of the thyroid cartilage at one centimeter lateral to the median line. The mucosa of the pyriform sinus is separated, the external portion of the laryngeal musculature is extirpated, and the pharyngeal mucosa cut from the arytenoid downward. Thus the ala of the thyroid cartilage with the entire pyriform sinus is removed. If the tumor extends downward to the orifice of the cosphagus, part of the cricoid should be removed without opening the trachea. If it invades the larynx deeply, the patient cannot be operated upon by this technic. If the tumor extends through the pharynx upward, the corresponding half of the hyoid bone should be removed and the operation amplified upward. When the tumor has been removed with the cartilage, the skin is sutured to the mucosa all around, leaving a pharyngostoma which will be closed after two months (fig. 8). When a tumor involves only the outer wall of the pyriform sinus, it is not necessary to do a tracheotomy.

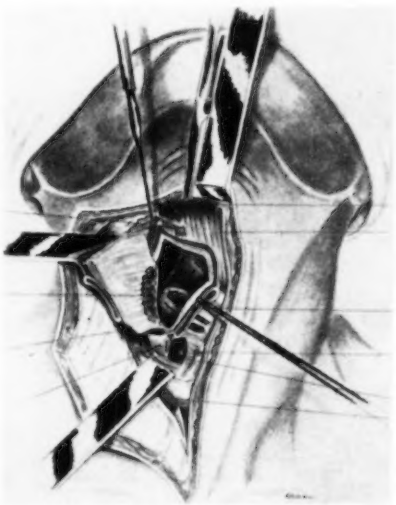

FIGURE 7.

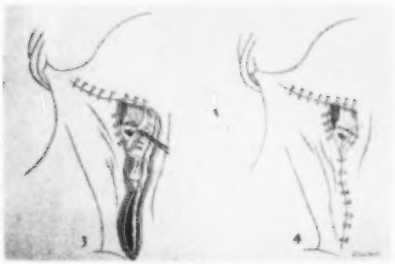

FIGURE 8.

By this technic, with slight variations, tumors of the lateral wall of the pharynx can be removed, as well as superficial retrocricoid tumors and those of the posterior wall of the hypopharynx.

TUMORS OF THE EPIGLOTTIC VESTIBULE (PARTIAL HORIZONTAL LARYNGECTOMY)

The observation of operative specimens shows three facts: (1) habitually, when the cancer attacks the lower part of the laryngeal surface of the epiglottis or the ventricular bands, it invades both structures. (2) This cancer invades the pre-epiglottic space very early. Superficially it extends to the arytenoid, outward (to the pharynx), to the valleculae, and more often, upward to the base of the tongue. (3) Extension downward is almost always limited anteriorly just above the anterior commissure, laterally, by the depth of the ventricle, which is not involved, and in the aryepiglottic fold it stops short of the arytenoid. The vocal cords generally remain uninvolved. This has been described by Baclesse.

This is easily understood if the following points are considered: (1) that the vestibuloepiglottic zone of the larynx has arteries, veins and lymphatics independent of those of the glottis and subglottis; (2) that the superior laryngeal nerve gives sensation to the supraglottic region of the larynx; (3) that as Frazer writes in his book on embryology, the part of the laryngeal cavity situated above the true vocal cords (aditus laryngeus) develops from the primitive pharynx, while the part of the laryngeal cavity located below the vocal cords develops from the superior extremity of the tracheal tube. The tendon of the vocal cords is inserted in an autochthonous tubercle situated on the primitive interthyroid lamina. In reality the ventricular bands and the epiglottis arise from the fourth branchial arch; the sixth forms the arytenoid and retroarytenoid regions; the fifth arch is represented by the tubercle of Santorini; the part of the aryepiglottic fold which is in front is derived from the fourth; that which is behind, from the sixth; the glottis and subglottis, from the trachea tube.

There is, therefore, a radiographic argument, an anatomopathologic basis, a bioanatomic reason and an embryologic fact to explain why tumors of the epiglottic vestibule invade the glottis rarely and late, if at all. It is easy to deduce from this that in the case of vestibuloepiglottic tumors, the sacrifice of the true vocal cords and with them the phonatory and respiratory functions of the larynx is generally unnecessary and useless.

During clinical and roentgenographic examinations many times it may seem that the glottis is involved by the growth because the supraglottic tumor does not allow us to see the true vocal cords, and tumor tissue may fall between the cords and appear as a roentgenographic shadow in the glottis. It is advisable, therefore, in cases of doubt, to make a surgical exploration, and decide for or against the total extirpation of the larynx only after direct inspection of the tumor.

Many surgeons have tried to solve this problem in isolated cases, carrying out conservative extirpations through a transverse pharyngotomy or a laryngofissure. This last procedure presents

three disadvantages: (1) the incision often passes through involved tissue; (2) it modifies the mechanism of deglutition, without leaving a pharyngeal stoma, which predisposes to pulmonary complications; and (3) when the cords are sound, it is senseless and reprehensible to open the glottis. The voice always remains somewhat disturbed.

I have dedicated myself to devising a technic which will permit complete removal of the tumor while conserving normal respiration and voice. By this operation it is possible to see and carefully palpate the tumor before removing it. Then the tumor and the regional nodes may be extirpated leaving a pharyngostoma temporarily for safety (except in the case of small tumors).

Technic

A flap similar to that which we have described for tumors of the pyriform sinus is laid back on the more involved side, but the vertical part of the incision begins above, at the hyoid bone, and terminates below at the middle of the thyroid cartilage (fig. 9). The nodes are extirpated on this side. (Extirpation of the nodes on the other side may be done by a separate incision on the same day or a few days later.) The corresponding half of the hyoid bone is removed and also the superior cornu of the thyroid cartilage. The superior laryngeal nerves and vessels are cut, all the muscles covering the superior part of the thyroid cartilage and the thyrohyoid space on this side are removed, and the whole upper half of the thyroid cartilage, including its posterior border on this side, is liberated. Then, at the former site of the superior cornu of the thyroid cartilage, the pharynx is opened by an incision 2 or 3 cm. in length (fig. 10). I consider the case ideal in which the glossoepiglottic fossa is normal. The index finger of the left hand is introduced through this orifice and passed between the base of the tongue and the epiglottis. The glossoepiglottic fossa is divided to the midline, along the index finger which serves as a guide. If the tumor invades this fossa, the section is made at higher level; in very extensive cases this part of the operation can be left for the last. The epiglottis is clearly

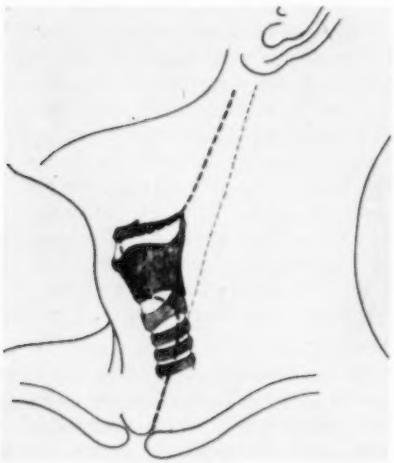

FIGURE 9.

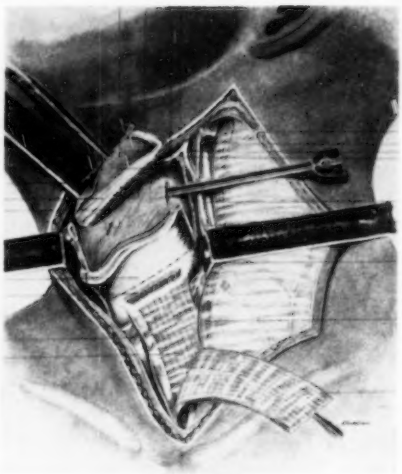

FIGURE 10.

FIGURE 11.

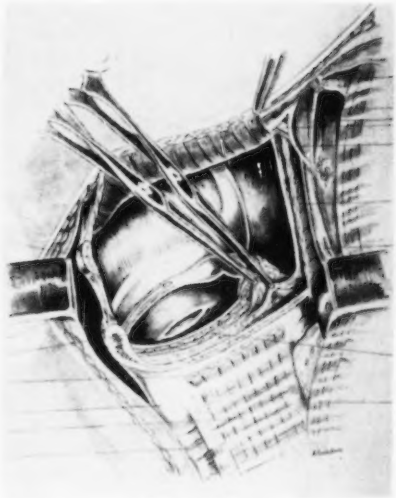

FIGURE 12.

seen; a thread is passed through its base to be used for traction, with the aid of which the epiglottis is twisted in order to see clearly the aryepiglottic fold. This fold is sectioned where necessary, often immediately in front of the arytenoid. A vertical section is done to arrive at the posterior part of the ventricle of Morgagni, taking care to conserve intact the mucosa of the pyriform sinus (important). Often it is convenient to cut the thyroid cartilage horizontally, a little below the midpoint from the lateral border to the median line. The part to be removed is thus mobilized. As soon as the tumor is well seen, a cut is made following the depth of the ventricle from behind forward to just above the anterior commissure of the vocal cords. Rotating the part thus liberated, we see clearly the rest of the lesion (fig. 11), which invades the epiglottis and the ventricular band on the other side and is removed according to indications. Generally it is wise to remove the anterior half of the ventricular band, and the anterior half of the aryepiglottic fold of the less involved side, along with all of the epiglottis, all of the ventricular band and the aryepiglottic fold of the more involved side, taking care not to cut the superior laryngeal nerve of the less involved side. If the tumor reaches the depth of the ventricle of Morgagni, the mucosa is removed from the superior surface of the vocal cord. Coagulation can be used moderately, but extensive coagulation should not be done because it produces edema. This accomplished, the mucosa of the pyriform sinus is dissected and liberated to below the cricoid in order to mobilize it (fig. 12). The flap is located in such a way that its upper border is at the level of the cut edge of the thyroid cartilage.

Skin and mucous membrane are sutured all around the stoma. The mucosa of the pyriform sinus is grasped with two forceps. One is fixed to its internal part, the other to its external part. The mucosa of the median wall of the pyriform sinus is drawn forward and sutured above the cut edge of the thyroid cartilage to the mucosa of the vocal cord on the more involved side; the

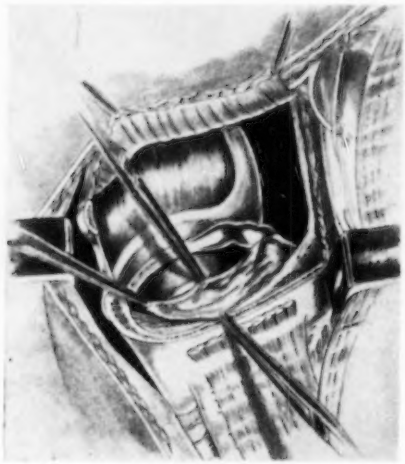

FIGURE 13.

mucosa of the lateral wall of the pyriform sinus is sutured to the skin (fig. 13). A communication between the pharynx and the exterior remains, formed by the suture of the skin to the mucosa. This orifice spontaneously narrows itself, and in two months is closed by sutures in two layers (figs. 14, 15,

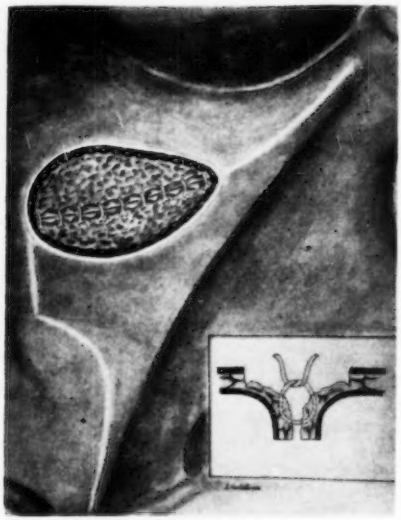

FIGURE 15.

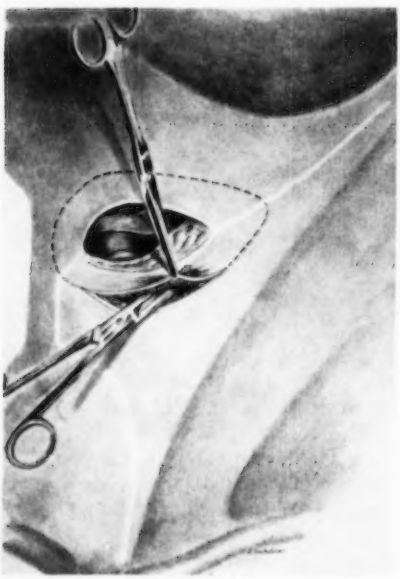

FIGURE 14.

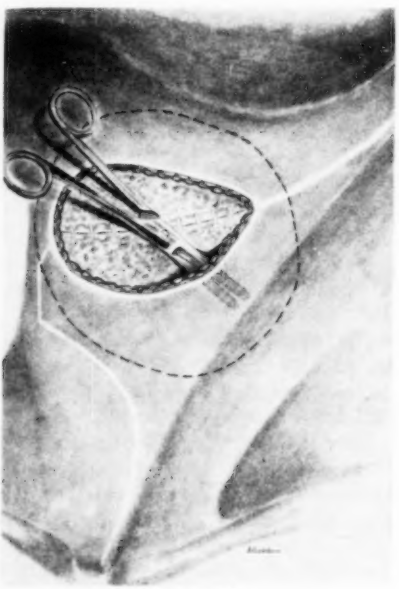

FIGURE 16.

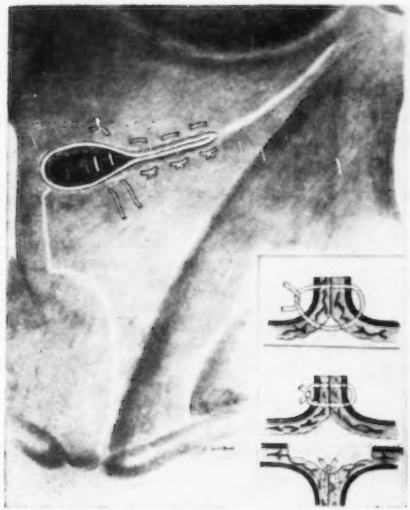

FIGURE 17.

16 and 17), then the tracheal cannula which was placed prior to the operation is removed, and if necessary, the orifice is closed surgically. Once the sutures have been removed, the patient remains approximately normal for his life and work.

SUBGLOTTIC TUMORS (PARTIAL ANTERIOR OR LATERAL LARYNGECTOMY)

This group includes true subglottic tumors, anterior or lateral, and lateral tumors of thyroid gland origin. I am working out a technic for operating in these cases, but the operations done are very recent and I am not ready, as yet, to suggest a definite technic.

RESULTS

The following tables show the results obtained. The twenty patients operated upon outside of Uruguay, for demonstration, are not included. The three cases in table II with recurrence in the larynx were operated upon by total laryngectomy, and have survived.

TABLE I

CANCER OF THE PYRIFORM SINUS

			FAVORABLE *		UNFAVORABLE †	
	CASES OPERATED	SURVIVALS	CASES OPERATED	SURVIVALS	CASES OPERATED	SURVIVALS
More than five years	12	2	2	1	10	1
More than three years	16	6	2	1	14	5
Less than three years	20	12	1	0	19	12
Total	36	15	3	1	33	14
Metastasis, death	To larynx	To pharynx, esophagus or tongue	To lymph nodes	To other organs		
	1	8	9	5		

* Low moderate grade, without metastasis.
† Lesion in advanced stage or with metastasis.

TABLE II

VESTIBULOEPIGLOTTIC CANCER

			FAVORABLE *		UNFAVORABLE †	
	CASES OPERATED	SURVIVALS	CASES OPERATED	SURVIVALS	CASES OPERATED	SURVIVALS
More than five years	32	13	7	5	25	8
More than three years	47	25	12	9	35	16
Less than three years	33	27	13	11	20	17
Total	80	49	25	18	55	31
Metastasis, death	To larynx	To pharynx, esophagus or tongue	To lymph nodes	To other organs		
	3	7	14	15		

* Limited or moderate in extent without metastasis.
† Lesion in advanced stage or with metastasis.

CONSERVATION OF FUNCTION IN SURGERY OF CANCER OF THE LARYNX: BASES, TECHNICS AND RESULTS

Part II. North American Technics

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PHILADELPHIA, PA.

As has been shown by Alonso,[1] the bases for his procedures designed to extirpate malignant tumors and yet conserve function to the highest possible degree consistent with good prospect of cure are anatomic and embryologic, as well as being dependent upon the known behavior of malignant tumors of the larynx. He has devised ingenious surgical technics for the removal of tumors of the pyriform sinus and the vestibulo-epiglottic region.

The technics that I shall discuss are not competitive with his, but rather complementary — they are the technics used for the extirpation of early cordal tumors, the only kind of laryngeal carcinomas generally treated by partial laryngectomy in the United States. These technics are not new insofar as their fundamental principles are concerned, having been first advocated a number of years ago by Thomson[15] in England and by Jackson,[6] among others, in the United States. The form of partial laryngectomy known as laryngofissure or median thyrotomy, in its simplest form, consists in removal of a limited cordal lesion involving only the middle third of one cord, with a surrounding zone of grossly normal tissue, through a midline division of the thyroid cartilage accomplished with shears. There has been little controversy about the indications for this operation in the case of lesions involving the middle third of one cord, though LeJeune[11] has reported good results from even more conservative intralaryngeal excision of such lesions under suspension laryngoscopy. Others have successfully treated such lesions by irradiation.

For lesions reaching the anterior extremity of the cord or involving the anterior commissure, many different variations of the technic have been devised. The original anterior commissure operation of Jackson,[7] which he described in 1922, called for division of the thyroid cartilage with a saw, instead of with shears, so that the lesion was not crushed or traumatized in opening the larynx. The soft tissues were then divided on the less involved side, after subperichondrial dissection, and the lesion excised under direct visual guidance. Clerf[4] suggested a slight modification of this technic, dividing the cartilage from the thyroid notch downward and slightly backward on each side, then excising the portion of the cartilage to which the anterior extremities of the cords were attached. Broyles' work[2,3,16] on the anterior commissure tendon makes it seem necessary to use some such procedure in lesions which even approach the anterior commissure. Kemler[9,10] has also described a technic of anterior commissure operation.

The operation of hemilaryngectomy, quite popular in France, has never been favored in the United States, but re-

From the Department of Laryngology and Broncho-Esophagology, Temple Hospital and School of Medicine.
Presented at the Fifty-Sixth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 14-19, 1951, Chicago, Ill.

cently Goodyear,[5] and some others[14] have revived it, and possibly it may prove more popular in the future, especially in view of the diminished postoperative risk since the advent of the antibiotics and their great value in diminishing incidence and gravity of postoperative infection.

In our clinic we have done a number of hemilaryngectomies, but in cases not requiring total laryngectomy we have generally done either the simple clipping type of laryngofissure, for early lesions of the cord which do not reach either extremity, or one of the anterior commissure operations, with division of the cartilage from the outside, in the case of lesions that do reach the anterior commissure. In recent years we have generally used a technic by which the portion of cartilage to which the anterior commissure attaches is excised. For the best conservation of phonatory function, as well as to permit more adequate access for complete removal, the anterior three fourths of the thyroid ala on the more affected side is also removed. Furthermore, we have done "alectomies" on many of our previously operated patients just for improvement of voice, with excellent results. Removal of the thyroid ala allows the soft tissues to come together and reduces air loss, thus permitting improvement of tone.

While I strongly defend laryngofissure, and even "narrow field" laryngectomy, so fanatically condemned by some, I must again emphasize the vital importance of adhering to rigid indications for these conservative procedures. We must not condone the use of the laryngofissure approach for the excision of lesions reaching the posterior commissure or impairing motility, or for lesions extending subglottically. On the other hand, statistics accumulated through many years' experience have shown not only that primary laryngofissure can cure 85 per cent to 95 per cent of suitable cases but also that the salvage of recurrences after laryngofissure brings the final five-year cure rate in this group to an even higher figure.[8]

I am very much in sympathy with the statement made recently by Ogura,[12] to the effect that the first chance is the best chance to cure cancer; but that principle applies more definitely to the cases in which the lesion has progressed beyond the laryngofissure stage. Salvage of recurrence after incomplete laryngectomy presents a very different picture from that presented by salvage of recurrence after laryngofissure. And as for "narrow field" laryngectomy, that is an operation *indicated only in the cases just a little too advanced for laryngofissure*. At the Temple University Clinic, we do not hesitate for a moment to do a "wide-field" laryngectomy, combined with unilateral or even bilateral neck dissection —including part of the pharynx and half the tongue if we deem it indicated. The operation for cancer should be, as stated by the great French surgeon, Sebileau, "à la demande de la lésion!"

As for "prophylactic" or "elective" neck dissection, I do not believe it is necessary in the case of a very early lesion in which laryngofissure or narrow-field laryngectomy is done, but I have come to believe that the work of Sylvestre and of del Sel[13] in Argentina, and of Ogura[12] and others here, has shown that it should be done in all advanced and especially supraglottic lesions treated by total laryngectomy. Incidentally, the technics described today by Alonso for extirpation of small or moderate sized extrinsic lesions, though they appear limited in the excision of the primary lesions and though they aim to conserve function, provide for adequate excision of regional nodes.

CONCLUSION

In our efforts to cure cancer of the larynx, let us not ignore conservation

of function, let us examine our patient thoroughly and weigh carefully the indications for the method of treatment. In carrying out the treatment decided upon, let us be fearless and thorough, but let us not be fanatics!

REFERENCES

1. Alonso, Justo M.: Conservative surgery of cancer of the larynx, Tr. Am. Acad. Ophth., 51:633-641 (July-Aug.) 1947.
2. Broyles, Edwin N.: The anterior commissure tendon, Ann. Otol., Rhin. & Laryng., 52:342-345 (June) 1943.
3. ———: New operative procedures for laryngofissure, South. M. J. 42:825-827 (Oct.) 1949.
4. Clerf, Louis H.: Cancer of the larynx. An analysis of two hundred and fifty operative cases, Arch. Otolaryng., 38:231-239 (Oct.) 1943.
5. Goodyear, H. M.: Hemilaryngectomy; method of maintaining satisfactory airway and voice, Ann. Otol., Rhin. & Laryng., 58:524-533 (Nov.) 1951.
6. Jackson, Chevalier: Primary malignant disease of the larynx, Laryngoscope, 14: 590-618 (Aug.) 1904.
7. ———: The results of operative methods in the treatment of cancer of the larynx, Proc. Xe Congres Internat. Otol. Paris, 1922.
8. Jackson, Chevalier L., Blady, John V., Norris, Charles M., and Maloney, Walter H.: Cancer of the larynx, five year end results in a series of patients treated between 1930 and 1942, J.A.M.A., 138:1080-1082 (Dec. 11) 1948.
9. Kemler, Joseph I.: Bilateral thyrotomy for carcinoma of the larynx, Laryngoscope, 57:704-718 (Nov.) 1947.
10. ———: Improved technique of the bilateral thyrotomy for carcinoma of the larynx, Laryngoscope, 58:598-600 (June) 1948.
11. LeJeune, Francis E.: The surgical treatment of early carcinoma of the larynx, Laryngoscope, 61:488-495 (June) 1951.
12. Ogura, J. H.: Laryngectomy and radical neck dissection for carcinoma of the larynx, Tr. Am. Acad. Ophth., 56:786-806 (Nov.-Dec.) 1951.
13. del Sel, Jaime, and Agra, A.: Cancer de laringe, Rev. argent. de oto-rinolaring., May-June, 1947: also, Trans. Third Pan-American Congress of Otolaryngology, Havana, 1952. (In press.)
14. Som, Max L.: Hemilaryngectomy, a modified technic for cordal carcinoma with extension posteriorly, Arch. Otolaryng., 54:524-533 (Nov.) 1951.
15. Thomson, St. Clair: Intrinsic cancer of the larynx; operation by laryngofissure, lasting cure in 80 per cent of cases, Brit. M. J., 1:355-359 (Feb. 17) 1912.
16. Ward, Grant E., and Hendrick, James W.: Tumors of the Head and Neck, Baltimore, Williams & Wilkins Co., 1950, Chap. XVI, pp. 590-617.

DISCUSSION

JOSEPH I. KEMLER, M.D., Baltimore, Md.: I, too, am very happy to see that many people are now trying to conserve function in cancer of the larynx. I have tried all my life to see that function is preserved if possible without jeopardizing the life of the patient by leaving some cancer. In 1947, I devised an operation whereby the anterior commissure, which is said to be an avenue of escape of intrinsic cancer of the larynx, is taken out. The cricothyroid membrane which may be another avenue for the cancer to escape is also removed at the same time. The operation, therefore, removes the anterior commissure with the cartilage, one centimeter on each side, with one half of the larynx on the tumor side, part of the unaffected side and the cricothyroid membrane all in one mass.

A midline incision is made in the skin from the hyoid down to just below the cricoid cartilage, through the skin and superficial fascia. The external perichondrium is incised in the midline and dissected one centimeter on each side with a Freer elevator. A superficial vertical cut is made in the cartilage just where the external perichondrium has been denuded to designate the extent of cartilage to be removed.

With a sphenoid punch or any cutting forceps, a strip of cartilage is punched out at the designated cut. Care should be taken to avoid injuring the inner perichondrium. With the Freer elevator, the inner perichondrium is dissected free from the ala of the thyroid cartilage throughout its entire extent on the affected side, the same as in a submucous resection of the septum. On the unaffected side, the dissection is carried on very little or not at all according to how close the tumor extends to or into the anterior commissure.

A few drops of pontocaine 2 per cent is instilled into the larynx through the crico-

thyroid membrane to prevent coughing when the larynx is opened. The incision is made from the more affected side through the cricothyroid membrane, hugging the cricoid cartilage all the way across to the unaffected or less affected side to the denuded inner perichondrium. The knife is then turned upward and cut vertically to the top of the cartilage. The knife is turned again and cut horizontally across the notch to the opposite or affected side. (A sharp pointed knife is used to enter the cricothyroid membrane and directly changed to a button end or a protected end knife so the structures on the inside of the larynx will not be injured.) The whole piece is turned over just like opening a door. With straight and curved scissors the entire mass is cut out. The arytenoid may or may not be cut out with the mass. The mass cut out consists of cartilage one centimeter on each side of the midline, anterior commissure with one third of the unaffected cord and the whole of the affected cord including the tumor and arytenoid plus the cricothyroid membrane. The remainder of the larynx, the anterior wall of the pharynx and the anterior aspect of the posterior wall of the denuded cricord cartilage are now apparent.

After bleeding is completely stopped, either by pressure or coagulation, the ribbon muscles with the external perichondrium are sutured completely. Then the skin is sutured over it and the operation is finished.

The operation is very easy to perform. I use no tracheotomy tube during or after the operation unless there is some reaction, or the patient has a secondary edema, in which case I put in a tracheotomy tube for a few days.

MR. RONALD MACBETH, Oxford, England: I should like to say how much I appreciate the very great privilege that you have given me in taking part in a discussion at this meeting of the Academy. I should like also to say how especially honored I feel to be associated with such well-known persons as Dr. Alonso and Dr. Jackson. I think that we must all agree that we owe Dr. Alonso a debt of gratitude for endeavoring to shift the operative emphasis in extrinsic cancer away from the larynx itself, with a corresponding attempt at conservation of function.

Fashion in operative surgery swings from one direction to another, from conservatism to ruthless surgery and vice versa.

Also one must have a great admiration, I think, for the technic which he has described. His diagnostic skill evidently is of a high order, because he is able to determine which of his cases are suitable for the kind of technic which he describes; and thereon I think one should perhaps utter a word of warning. I am not quite certain what impact a paper of this kind is going to have upon some of the younger men who have not quite such a high diagnostic skill or experience.

As Negus has shown, the vocal function of the larynx is really secondary, the sphincteric and the respiratory functions being primary. On the other hand, cancer is insidious and uncompromising. The treatment of cancer should, in the view of many of us, be uncompromising, too. We should ask ourselves, I think, whether the preservation of vocal function is worth the risk that is sometimes taken on its behalf. Radiation therapy in the case of malignancy of the pyriform sinus, most of us agree, is almost valueless. In my view (and I think I echo what most British laryngologists think on this matter) radical surgery, including laryngeal extirpation, is indicated in most growths of the pyriform sinus. Vocal function can be effectively reacquired, in the English language at least, by an esophageal voice; sphincteric function is sidetracked; and respiratory function is compensated. Any types of laryngeal operation in between median thyrotomy and total extirpation we regard in Britain as dangerous from the point of view of loss of sphincteric control or of consequent stenosis. We should remember, I think, that Trotter's work in this field was undertaken before the days of penicillin and that more of his cases died of recurrences than of sepsis.

With particular reference now to Dr. Alonso's series of sinus cases, I would have the feeling that only those earliest cases in the lateral wall of the sinus should be tackled by conservative surgery. The lesion in this field spreads submucosally, extremely insidiously, and it is extremely difficult, in my experience to determine by inspection, even when one has entered the pharynx, just how far it may have spread.

I felt a little unhappy about Dr. Alonso's exposure, ingenious though it was, because I felt that it would be impossible to do a really radical dissection of the glandular field, which in my view is always necessary in cases of carcinoma of the pyriform sinus. I have yet to see a case of carcinoma of the pyriform sinus in which glandular spread did not occur at some time or other.

Dr. Alonso's figures were interesting. Of the pyriform sinus cases, of those who died nine had local recurrences and nine had distant

metastatic recurrences in the lymph nodes.

With regard to the vestibular epiglottic lesions, I agree that some early and wholly extralaryngeal cases can be treated surgically without sacrificing the larynx. Of the thirty-nine deaths that Dr. Alonso quoted, ten showed recurrences but only three of them were laryngeal. This emphasizes the fact that in this area there is a very definite field for conservative surgery in appropriate cases.

With regard to Dr. Jackson's paper, I had no opportunity to see his paper before we started this afternoon, but knowing him and his work as I do, I felt that I could more or less guess what he was going to say and I have no real difference of opinion with him about what he did say. I should like to emphasize, however, the value of removal of the ala of the thyroid cartilage in the operation of median thyrotomy. It does give a greater mobility of tissue and I think a better functional result.

Finally I should like to repeat, if I may, a warning to the younger men that extrinsic cancer is a ruthless disease and the present trend is toward ruthless surgery. Other methods have not stood the test of time.

DR. JACKSON: We should like to thank the discussers and to make just one or two comments on the discussion. In connection with the pyriform sinus cases, I think we quite agree that only the early cases should be attacked by this approach. Just a few weeks ago I had occasion to see in our clinic a case which we handled in a very similar manner to Dr. Alonso's technic. This man had a recurrence in the pyriform sinus after irradiation. It seemed to be a very small residual lesion, and surgical excision without sacrificing the larynx gave us, we felt, a very adequate margin of safety.

I have seen Dr. Alonso operate in Montevideo. I have seen a good many of his patients there, and I must say that I am extremely happy that I have been able to help a little in putting over his message to this group, because I feel that these technics to which he has given so much attention have been neglected in this country, and I think it is not so much that his operations are more conservative than we have done, but they point out the necessity of suiting the operation to the lesion. I think that too often, in this country, the surgeon feels satisfied because he has taken out the larynx, and yet in the case of these lesions located in the extrinsic areas of the aryepiglottic fold and the pyriform sinus, you have not necessarily done a good or complete job just because you have taken out the whole larynx, not even if you have taken out the lymph nodes, and I think this "shifting of emphasis," as Mr. MacBeth very appropriately put it, is the important thing. Concentrate on the lesion and carry out as extensive a surgical excision as necessary for the extirpation of the lesion. It is just as much to accomplish an appropriately wide excision of the tumor as for the conservation of function, that these technics are advocated; and it is because the sacrifice of the larynx is frequently in vain as well as unnecessary that Dr. Alonso's message is so particularly important.

A PTOSIS CLAMP FOR HOLDING THE LEVATOR MUSCLE DURING RESECTION OF THE LEVATOR PALPEBRAE MUSCLE

RAYNOLD N. BERKE, M.D.
HACKENSACK, N. J.

ONE of the greatest problems in performing the operation of resection of the levator has been the difficulty of securely holding the levator tendon while it is being freed from its several attachments. If three traction sutures are inserted into this tendon, as advocated by Blaskovics, the sutures always get twisted, bunch the levator muscle and tend to pull out.

To meet this need, a ptosis clamp has been devised which we, at the Eye Institute, have used for the past two years and have found very satisfactory for grasping and holding the levator tendon securely.

This clamp is much like an ordinary extraocular muscle clamp except that the biting arms of this new instrument are 20 mm. rather than 10 mm. long (fig. 1). Corrugations to prevent slipping have been placed inside the biting arms of this ptosis clamp. A sliding attachment locks the blades securely together and requires only one hand to manipulate. Teeth or pins on the biting blades have been tried on other models but discarded because of the difficulty in sliding such clamps under the levator muscle and because of the difficulty in cleaning.

This instrument may be procured from the following instrument makers: Meyrowitz, V. Mueller and Storz.

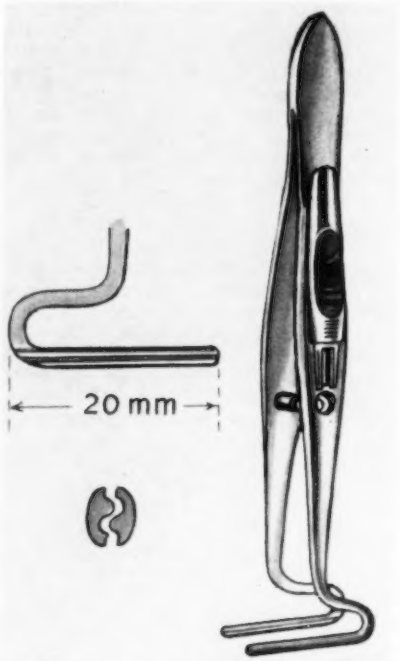

FIG. 1—A ptosis clamp for holding the levator muscle during the resection of the levator palpebrae muscle.

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Symposium: Ocular Manifestations of Dermatologic Diseases

A considerable number of skin diseases, such as acne rosacea, herpes simplex, and erythema multiforme, have major ocular manifestations. A still larger number, including atopic dermatitis, scleroderma, and pseudoxanthoma elasticum, display rare but important ocular lesions. There are actually only a few skin diseases that are without eye lesions of any kind. In the first part of this symposium, the eye manifestations of the major dermatoses will be described by Dr. Phillips Thygeson, and in the second part a number of asociated ocular and dermatological expressions of systemic disease will be presented by Dr. Isadore Givner. Our dermatologist colleague, Dr. M. F. Allende, will discuss the general skin manifestations of the various diseases in question, the conditions which favor ocular localization, and the recent advances in dermatologic therapy, including the use of cortisone and ACTH, the antibiotics, and the antihistaminic drugs.

* * *

OCULAR MANIFESTATIONS OF THE DERMATOSES

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THE PYODERMAS

STAPHYLOCOCCI and streptococci produce a wide variety of dermatoses that involve the eyelids, primarily or secondarily. A number of these conditions can be caused by either organism and it is often difficult to make a clinical differentiation between the two types of infection.

Marginal blepharitis, both squamous and ulcerative, is the most common of all skin and eye associations and is frequently caused by staphylococci. The infection may be pure (fig. 1), or the staphylococci may secondarily infect seborrheic (fig. 2) or diplobacillary (fig. 3) blepharitis, the other two major types. External and internal *hordeola* are the next most common skin and eye association, and *chalazion* is often a sequel to both blepharitis and internal hordeolum.

Impetigo contagiosa of the eyelids (fig. 4) may be either streptococcic or staphylococcic, but is much more often staphylococcic. The two types can be differentiated by culture only. The lesion has the same clinical appearance as impetigo elsewhere on the skin. The initial red macule rapidly becomes a flaccid vesicle and then a pustule. The seropurulent exudate dries up and leaves a thick, honey-colored, loosely adherent crust. Removal of the crust discloses a superficial ulcer with thin, overhanging edges of epidermis. New lesions tend to appear rapidly, usually as a result of autoinoculation. There is often an associated conjunctivitis.

FIG. 2—Seborrheic blepharitis, characteristically with greasy, soft scales.

Ecthyma is an ulcerative type of streptococcic dermatitis, similar to but

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more deeply seated and more destructive than impetigo. It affects the legs most commonly, but destructive, sometimes gangrenous, lesions of the eyelids occur occasionally. Schreck reported such a case in which gangrenous ecthyma of the lids in a 17-day-old infant led to death. It was a mixed infection with streptococci and coliform bacilli.

Sycosis vulgaris, or "barber's itch," is characterized by a deep invasion of the hair follicles. The initial lesion is a red, follicular papule which is soon converted into a yellow pustule pierced by a hair. On the lid margin it appears as an ulcerative blepharitis (fig. 5). It is always due to staphylococci. A facial sycosis vulgaris not uncommonly arises from a lid margin sycosis, and of course the reverse may occur.

Infectious eczematoid dermatitis (fig. 6), which often arises from a staphylococcic marginal blepharitis, is one of the most important lid conditions due to staphylococci. It is usually bilateral and characterized by widespread involvement of the entire lid surface with an eczema-like dermatitis, and by an associated conjunctivitis and keratitis. There is usually considerable itching. The condition is often confused with contact dermatitis but can normally be differentiated from it on the basis of the keratitis, since there is typically no corneal involvement in contact dermatitis of the lids. Infectious eczematoid dermatitis can also be caused by streptococci, but it should be emphasized that so far as the lids are concerned, the staphylococcus is by far the commoner cause of this inter-

LEGENDS FOR COLOR PLATES

FIG. 1 — Staphylococcic blepharitis, characteristically with dry, brittle scales.

FIG. 3—Diplobacillary blepharitis with predominant involvement of the inner and outer canthi, the so-called "angular" blepharitis.

FIG. 4—Impetigo, staphylococcic type, with associated conjunctivitis.

FIG. 5 — Staphylococcic ulcerative blepharitis. Photograph by courtesy of Dr. Henry Allen.

FIG. 6—Infectious eczematoid dermatitis of the eyelids arising from a staphylococcic blepharitis.

FIG. 9—Rosacea keratitis.

FIG. 10—Atopic dermatitis with cataract.

FIG. 11—Vascularizing keratitis in a patient with severe atopic dermatitis.

FIG. 12—Contact dermatitis due to sensitivity to butyn.

FIG. 13—Xeroderma pigmentosum.

FIG. 14—Accidental vaccinia virus infection of the eyelids. Photograph by courtesy of Dr. C. Perera.

FIG. 15—Herpes simplex virus infection of eyelid and cheek, without corneal involvement.

FIG. 21—Pigmentation of the eyelids due to long-continued use of yellow oxide of mercury ointment.

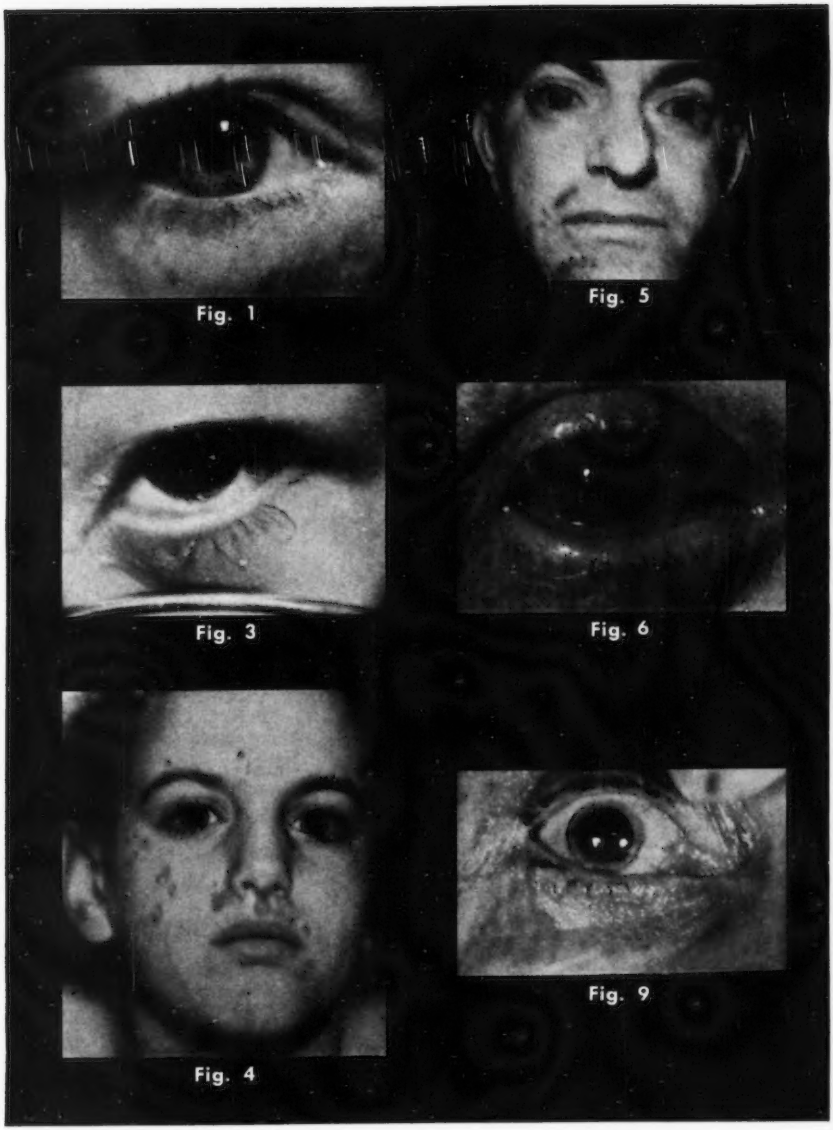

Fig. 1

Fig. 5

Fig. 3

Fig. 6

Fig. 4

Fig. 9

Fig. 10

Fig. 11

Fig. 12

Fig. 13

Fig. 14

Fig. 15

Fig. 21

FIG. 7—Erysipelas of the eyelids with corneal involvement.

FIG. 8—Ocular diphtheria with eyelid involvement.

esting condition. Differentiation between the two etiologic types requires culture study.

Erysipelas of the eyelids (fig. 7), which is always due to hemolytic streptococci, usually arises in small excoriations on the nose, such as may be produced on the bridge of the nose by glasses. Since about 60 per cent of all erysipelas occurs on the face, it is inevitable that eyelid involvement should be common. The condition can extend onto the conjunctiva and cornea to form a membranous keratoconjunctivitis, and in rare instances has spread into the orbit with disastrous results. Extensive gangrene of the lids has occurred. The diagnosis is made on clinical grounds, but the hemolytic streptococci can be recovered from the subcutaneous tissues by aspiration.

Diphtheria involving the eyelids (fig. 8) is seen occasionally as a complication of ocular diphtheria. The dermatitis may be ulcerative, impetiginous, or eczematoid, and with or without false membrane formation. Occasionally gangrene of the lids may result from failure of blood supply. This happens in cases of true membrane formation in which there has been coagulation within the tissues.

DISEASES OF THE SEBACEOUS GLANDS

Overactivity of the sebaceous glands of the lid margins, that is, the meibomian glands, is a common primary cause of eye disease. Meibomian gland overactivity may be independent of activity of the sebaceous glands of the face; however, in acne vulgaris it is not uncommon to find normal meibomian glands, and conversely, marked overactivity of the meibomian glands may coexist with normal activity of the sebaceous glands of the face.

Simple meibomian gland overactivity without secondary infection may produce *conjunctivitis meibomiani*, a low-grade conjunctivitis with a peculiar white secretion which is an emulsion of tears and meibomian oil; the fatty secretions of the meibomian glands can be split by bacteria into choline and other end-products which have a definitely irritating effect on the conjunctiva. This condition is most likely to develop in middle-aged individuals. The characteristically dilated meibomian orifices open the glands to secondary bacterial infection and the condition known as *meibomitis*.

Milium is a small, white, cystic excrescence containing sebaceous material. It has a predilection for the eyelids, and especially for the lower lids. Seborrhea is a predisposing factor. Unlike the

large sebaceous cysts which are also common around the eyes, milia almost never become infected.

Seborrheic dermatitis is one result of overactivity of the sebaceous glands, or seborrhea. It is characterized by a scaly eruption, usually beginning on the scalp and extending to contiguous areas. Ultimately the eyebrows, eyelids, nasolabial folds, ears, anterior and posterior hairlines, chest, and back may be affected. Involvement of the ears, including the shell, the retroaural folds, and the external canal, is highly characteristic. Seborrheic blepharitis (fig. 2) is one of the commonest of all eye diseases. It is characterized by a greasy scaling of the lid margins and can be differentiated on this basis from staphylococcic blepharitis in which the scales are adherent and brittle. Mixtures of the two conditions can occur, of course. Seborrheic blepharitis is ordinarily well tolerated when uncomplicated by secondary staphylococcic infection, and the accompanying conjunctivitis is then usually minimal. In these uncomplicated cases a severe type of epithelial keratitis may occur, however. This is believed to be a sensitization effect and may eventually prove to be an allergy to Pityrosporum ovale, the yeastlike organism found in all cases of seborrheic blepharitis.

Rosacea is a chronic symptom complex characterized by a symmetrical flushing of the face and acneform lesions which usually terminate in hypertrophy of the tissues. The disease is about three times more common in women than in men and usually makes its appearance after the thirtieth years. The hyperemia of the face, forehead, and neck persists for indeterminate periods. Finally dilated capillaries, indolent papules, papulopustules, and dilated follicles appear in the hyperemic areas. In the course of time the involved skin becomes thickened, especially the skin of the nose which hypertrophies in bulbous folds (rhinophyma).

Chronic blepharitis and conjunctivitis occur in well over half of all cases of rosacea, and a rosacea keratitis develops in about 5 per cent. Secondary staphylococcic infection is very common and probably accounts for most of the blepharitis and conjunctivitis. Typical catarrhal ulcers may occur, but they, too, seem usually to be due to the secondary staphylococcic infection. There is a true rosacea keratitis, however, characterized by phlyctenule-like excrescences at the limbus, superficial and deep corneal infiltrates, and the development of a rosacea pannus (fig. 9) which is usually sector-like in distribution. With each recurrence this keratitis, which is at first peripheral, extends further toward the pupillary area.

THE ECZEMA GROUP OF DERMATOSES

The eyelids are commonly involved in eczematous dermatitis. The term eczema, of course, does not define a specific clinical entity but is a descriptive term for a special type of vesicular epidermal reaction. If the exciting factor is known, a qualifying adjective is added to denote it, for example, "seborrheic dermatitis" or "seborrheic eczema," "arsenical dermatitis," or "plant dermatitis." A number of conditions formerly classified as eczema are now considered to be distinct dermatologic entities due to specific causes, such as contact dermatitis, localized neurodermatitis, infectious eczematoid dermatitis, dermatomycosis, and allergic or id eruptions due to fungi, yeast, bacteria, or metabolic products.

Atopic eczema, or disseminated neurodermatitis, is an acute, subacute, or chronic dermatitis in allergic individuals. It is a form of allergy which is influenced by inheritance and distinguished by the presence of specific circulating antibodies or reagents. The ex-

citing cause is frequently unknown but may be a primary irritant such as soap, wool dress, fur coat, or foods. Seasonal types are usually due to inhalants, including pollens, yeasts, and fungi.

The face and eyelids (fig. 10) are commonly affected in atopic dermatitis, and the conjunctiva may also be involved as a result of the secondary bacterial infection almost invariably present. Of very great ophthalmologic interest, and indicating that epithelial surfaces other than the skin may be involved in atopy, is the occurrence of cataract in a certain proportion of cases, particularly among young individuals; recently a severe vascularizing keratitis (fig. 11) has been described in association with atopic dermatitis.

Contact dermatitis, or dermatitis venenata, is an acquired epidermal sensitivity to some substance with which the patient has been in contact over a period of time. The sensitizing substances include chemicals, soaps, plants, drugs, dyes, pollens, and various products used in the home and in industry. The cutaneous reaction varies from slight itching to severe vesiculation. Since the skin of the eyelids is extremely susceptible to allergic sensitization, contact dermatitis involves the eyelids in a high proportion of cases. Perhaps one fourth of the eyelid cases arise from sensitization to cosmetics, eyelash curlers, medical preparations (fig. 12), etc. Nail polish and the rubber used in eyelash curlers are particularly likely causes.

DERMATOSES DUE TO PHOTOSENSITIVITY

Xeroderma pigmentosum is a precancerous condition (fig. 13) due to a rare congenital and hereditary form of light sensitivity. At birth the child appears to have a normal skin, but with exposure to sunlight an acute erythema develops. When this clears a dry, rough, scaly skin is left with diffuse and spotty pigmentation resembling freckles. This at first disappears in winter and recurs in spring, but it gradually becomes permanent and progressively darker. Ultimately atrophic spots and warty growths appear. These ulcerate and fungate and usually degenerate into squamous cell, or less often basal cell, carcinoma.

The most commonly involved ocular structures are the lids upon which the keratoses are particularly likely to undergo malignant changes. Ectropion of the lower lids frequently occurs as a result of scar tissue contraction from keratoses on the cheeks. The conjunctival and corneal changes are less severe but squamous cell epithelioma may develop at the limbus.

The disease runs a chronic course but life is usually short, death resulting from metastases of the squamous cell carcinoma.

Hydroa vacciniforme (hydroa aestival, summer prurigo) is a rare, recurrent disorder in children resulting from a congenitally abnormal sensitivity to the ultraviolet rays of the light spectrum. It usually begins in infancy or early childhood and gradually disappears after puberty. Characterized by an eruption of vesicles and bullae on the face and exposed parts, the condition tends to recur each spring, reaches its height during July and August, and then gradually fades. The general health is unaffected. The eye lesions are usually mild, in most instances the lids only being involved. Rare conjunctival and corneal lesions resembling those in the limbal type of vernal catarrh have been reported.

Acute solar dermatitis, or sunburn, is characterized by erythema, itching, and burning in mild cases, and by vesicles, bullae, and associated toxic symptoms in severe cases. Herpes simplex of the lips is a common complication. The eye changes include a conjunctivitis involv-

ing the exposed areas of the bulbar conjunctiva, and a keratitis involving the portion of the cornea exposed in the lid aperture. The keratitis is epithelial in type and is due to the ultraviolet light. It is identical in appearance and clinical course with "snow blindness" and the so-called "flash burn."

THE DERMATOMYCOSES

It is noteworthy that although the superficial fungus diseases form a large percentage of the total number of cases seen in the practice of dermatology, they are responsible for only a few eye lesions.

Ringworm of the scalp, or tinea tonsurans, is a common contagious infection in children. There are two distinct types: (1) microsporosis, caused by a small-spore ringworm, and (2) trichophytosis, caused by a large-spore ringworm. Microsporosis is the more common and is usually the result of infection with Microsporon audouini or Microsporon lanosum. The disease starts as a localized scaliness which is followed by the appearance of a red macule surrounding a hair follicle. Round, oval, or irregular inflammatory patches with sharply defined borders then develop. They are studded with short hair stumps which have a nibbled appearance and project from follicles filled with epithelial debris. The affected hair soon becomes brittle, dull, loosened, and thickened from infiltration with fungi. Each hair has a grayish white, frosty sheath composed of spores.

Trichophytosis of the scalp is an infection with endothrix trichophytons which grow within the hair, or with ectothrix trichophytons which grow outside the hair in the sheath and cuticle. This latter type is characterized by scaly patches which contain broken-down or corkscrew hairs curled up in the follicles.

Ringworm of the scalp occurs most commonly among Negroes and among children, white and Negro, from slum districts and public institutions. A few instances of Microsporon infection of the cilia in children have been reported. In all probability many unreported cases have occurred, although the writer, on the alert for such a case, has yet to see one. Only one case has been observed in the dermatology clinic of the University of California.

Diagnosis is based on microscopic examination of the hairs in potassium hydroxide preparations, or on cultures on Sabouraud's medium. Hairs infected by Microsporon that are not visible to the naked eye fluoresce when exposed to Wood's light in a dark room; Wood's light is ultraviolet light passed through a cobalt or nickel glass filter.

Ringworm of the beard, or tinea barbae, is a suppurative folliculitis that is limited almost entirely to the male sex and occurs much more commonly in farmers than in any other occupational group. Trichophyton rosaceum is the fungus usually found in the lesions. Only rarely do they spread upward to involve the eyelids.

Favus is a chronic contagious disease of the scalp which occasionally involves also the trunk and nails; infection of the lids has been known to occur but is extremely rare.

The epidermophytoses may appear as acute or chronic lesions. They consist of single or multiple superficial patches of bright red dermatitis and each area has a well-defined serpiginous border. The eruption may become eczematoid or pustular. The genitocrural region and the hands and feet are the commonest sites. A variety of fungi may produce the lesion and secondary infection may be a complication. Typical lesions have

appeared on the eyelids but with extraordinary rarity considering the possibilities of their exposure to the disease.

The dermatophytids are allergic manifestations in individuals sensitized by absorption of fungi or their toxic products. The lesions are primarily vesicular. Diagnosis is based on the finding of a primary focus and on a strongly positive Trichophyton test. No fungi are found in the lesions themselves. Dermatophytids have occurred on the eyelids but infrequently in comparison with their occurrence elsewhere on the body. It has been suggested that certain rare cases of phlyctenulosis may result from allergic sensitization to fungi.

Torulosis is a rare systemic or localized infection caused by Cryptococcus histolytica. The localized type is usually a granulomatous ulcer; the commoner systemic type has meningitic or pulmonary signs. In many cases spores can be isolated from the spinal fluid. Ocular complications, including optic neuritis and retinal hemorrhage, have been reported secondary to the meningitis.

Blastomycosis is a chronic localized or systemic infection caused by the double-contoured yeasts known as the Blastomyces. It is characterized by granulomatous lesions and the usual skin type develops large ulcers of a typical violet hue and covered with thick crusts and papillomatous vegetations. The disease occurs most commonly on the exposed parts, including neck, face, the dorsum of the hands, and the lids, but involvement of the orbit has also been reported, particularly from the Mississippi basin of the United States. Diagnosis is based on biopsy, smear, and culture, and on a recently developed intradermal test known as the blastomycin test. A few cases of metastatic involvement of the inner eye have been reported. Noojin and Prayter reported a case of systemic blastomycosis in a woman in whom the initial lesion appeared on the left upper eyelid.

Sporotrichosis, caused by Sporotrichum schencki, is a chronic cutaneous disease whose primary lesion, the so-called "sporothrix chancre," develops at the portal of entry and is followed by an ascending regional lymphangitis with multiple subcutaneous, indolent, painless abscesses and ulcers. In rare instances the eyelids have been involved, as in the case reported by Gordon. The clinical picture is characteristic but the diagnosis can also be made on culture findings since the organism grows readily on ordinary media.

Actinomycosis is not primarily a skin disease, but in the cervical-facial type the skin of the face and eyelids may be affected. The organisms enter the mouth through carious teeth or infected gums, or, after extraction of teeth, from the chewing of contaminated grass, straw or grain. Chewing straws or picking the teeth with straws are dangerous practices, particularly among agricultural workers. Biopsies show numerous nodular masses of granulation tissue containing fungus granules with radiating filaments terminating in clublike nodes. The infiltrates surrounding the masses are characteristic of an infective granuloma.

Cutaneous moniliasis is a polymorphous eruption involving the flexor surfaces and the areas of the body subject to irritation by friction. It is caused by a yeastlike organism known as Monilia albicans. The eruption is usually papillosquamous but may sometimes be papillovesicular. The eyelids are occasionally involved as an extension from the facial lesions. The conjunctiva and cornea seem to be relatively resistant to the organism but one case of monilial keratitis

has been reported. The conjunctival resistance is particularly apparent in the newborn baby who is frequently exposed to moniliae by virtue of a monilial vaginitis in the mother; chronic oral moniliasis, or thrush, occurs frequently in the newborn baby, but moniliasis of the conjunctiva is extremely rare. I have seen one case in which a severe phlyctenulosis appeared to have resulted from sensitization to Monilia, and rare cases of monilial canaliculitis have been reported. The diagnosis of the lesion is based on the finding of the characteristic yeastlike organisms in smears and cultures.

DERMATOSES DUE TO FILTRABLE VIRUSES

A considerable number of dermatoses with ocular involvement have been shown to be caused by filtrable viruses, and another considerable number of still unknown etiology, such as pemphigus, pityriasis rosea, psoriasis, and dermatitis herpetiformis, have been considered as possibly due to viruses. The commonest lesion of herpes simplex is an acute eruption on the lips, the so-called "fever blister," but by far the most serious localization of herpes simplex virus is the cornea. In herpes zoster the ophthalmic division of the fifth nerve is frequently involved, and here again it is the corneal lesions of this virus disease that are the most important. Other virus diseases with significant skin manifestations and associated eye lesions include foot and mouth disease, lymphogranuloma venereum, measles, rubella, varicella, variola, vaccinia, molluscum contagiosum, and verruca.

Vaccinia

Numerous reports in the literature attest the frequency of vaccinia virus infection of the eyelids. Less frequently reported are vaccinial infections of the conjunctiva and cornea. These are usually secondary inoculations from the lids, most of which have been accidental self-inoculations by children with active antismallpox vaccinations. A few cases, such as the one described by Perera, have occurred in adults who have accidentally infected themselves from their children or in the laboratory. Figure 14 shows Perera's patient who accidentally infected himself from his daughter's vaccination lesion, developed lid pustules, and then conjunctivitis and keratitis. The corneal infection took the form of a disciform keratitis, a viral entity sometimes caused by vaccinia virus but more frequently by other viruses. The diagnosis of vaccinia can be presumed from the clinical appearance of the disease and a history of exposure to the virus, but it can be established with certainty only by recovery of the virus from the lesion.

Herpes Simplex

The virus of herpes simplex is the cause of the most important of all the specific keratitides. Although it affects the cornea most commonly, there is also an acute conjunctival form, and rarely an iridocyclitis. Lid vesicles sometimes occur, with or without conjunctival or corneal disease. The keratitis is usually dendritic but occasionally disciform. Interestingly enough, major skin involvements with the virus are not often associated with the eye disease. For example, only about one third of the patients in the herpes clinic of the dermatology department at the University of California had past or present herpetic eye disease, only 10 per cent of the herpes corneae patients in the eye clinic at the same institution gave histories of skin herpes other than fever blisters, and only about 50 per cent of this group gave histories of fever blisters. Figure 15 shows an example of lid herpes unaccompanied by conjunctival or corneal herpes; figure 16, on the other hand, shows a young man who had recurrent attacks of dendritic keratitis accom-

FIG. 16—Herpes simplex virus infection with simultaneous skin and corneal lesions.

FIG. 17—Herpes zoster ophthalmicus with nasociliary nerve involvement and keratitis.

panied by labial herpes and herpes vesicles of the lids.

Herpes Zoster

The ocular form of this virus infection, herpes zoster ophthalmicus, while much the most disabling manifestation of the virus, occurs less frequently than the abdominal and other forms. It is of clinical interest and importance that involvement of the cornea and uveal tract parallel involvement of the nasociliary nerve, as shown in figure 17; when the area supplied by this nerve is spared, the globe is usually spared (fig. 18). Vesicles form on the eyelids and, unlike the vesicles of herpes simplex virus infection, involve the derma and lead to permanent scarring. Conjunctival involvement is insignificant and leaves no scars, but scarring after corneal involvement is almost the rule. The typical keratitis consists in the development of round, subepithelial infiltrates, sometimes resembling those produced by the virus of epidemic keratoconjunctivitis; exceptionally it develops as a disciform kera-

FIG. 18—Herpes zoster ophthalmicus without nasociliary nerve involvement and without keratitis.

FIG. 19.—Verruca nodule of the eyelid with epithelial keratitis.

FIG. 20.—Molluscum contagiosum of the eyelids.

titis. Iridocyclitis often accompanies the keratitis and in many instances is complicated by secondary glaucoma. Rare instances of ocular palsy and optic neuritis have occurred.

Verruca Vulgaris

The common wart occurs frequently on the lids (fig. 19), and particularly on the lid margins. Conjunctival and corneal papillomas caused by the same virus are believed to occur rarely but they must be rare indeed compared with the lid lesion. As first pointed out by de Roetth, however, a superficial keratitis occasionally develops when the verruca involves the lid margin, particularly the margin of the upper lid. The keratitis is ordinarily epithelial in type, does not ordinarily produce a permanent opacity, and is relieved by removal of the wart.

Molluscum Contagiosum

Primarily a skin disease, molluscum contagiosum has rare but important eye manifestations and should be considered a possible cause of every case of unilateral conjunctivitis. When the molluscum nodule involves the lid margin (fig. 20), particularly of the upper lid, a follicular conjunctivitis, sometimes complicated by a pannus-forming keratitis, is likely to develop. The disease may be severe enough to simulate trachoma. Removal of the nodule always results in prompt cure, indicating that the conjunctival and corneal manifestations are secondary in nature and not true localizations of the virus. Desquamation into the conjunctival sac of virus-containing material from the nodule is undoubtedly the source of the keratoconjunctivitis which must be either allergic or toxic. The toxin hypothesis seems the more probable in view of the absence of conjunctival eosinophilia or of phlyctenule production, either or both of which would be expected if there were an underlying allergy.

It should be remembered, however, that in rare instances actual molluscum nodules may form on the conjunctiva or cornea, as in the interesting case of a corneal nodule reported by Quill. In these cases there is an actual growth of the virus in the tissues and the nodules must be removed to effect a cure.

A clinical diagnosis of molluscum contagiosum can often be made on the basis of the pearly color and umbilicated center of the nodule, but laboratory confirmation is possible by means of histopathological examination of the excised nodule, or more simply by demonstration of the virus particles or inclusion bodies in scrapings from the umbilicated centers.

PIGMENTATIONS

Abnormalities of the pigmentation of the skin and hairs of the eyelids occur in a number of systemic diseases, as will be mentioned in Dr. Givner's and Dr. Allende's parts of this symposium; only local abnormalities of pigmentation will be considered in this section. Chief among these are the metallic discolorations due to prolonged topical use of silver and mercury preparations. Argyrosis of the conjunctiva and cornea frequently develops after the use of argyrol or silver nitrate, but concurrent argyrosis of the lids is seen only occasionally in cases in which silver nitrate scrubs have been used in the treatment of blepharitis over long periods of time. Mercury stains occur much less commonly. Figure 21 from the report by Long and Danielson illustrates mercury staining in a woman who had used yellow oxide of of mercury for blepharitis over a period of many years. Bismuth and mercury in freckle creams have been known to discolor the eyelids.

Other pigmentations of a local nature involving the eyelids include the melanin pigmentation of sunburn, radiodermatitis, and xeroderma pigmentosum.

MISCELLANEOUS DERMATOSES

Alopecia areata is characterized by loss of hair, most commonly on the scalp, in one or more circumscribed patches. The eyebrows and eyelashes may occasionally be involved. Figure 22 illustrates the disease in a young girl in whom there was sudden loss of the cilia from the lids of both eyes. The prognosis is good in young patients, the hair returning in a matter of months.

Psoriasis is a chronic disease of unknown etiology characterized by sharply defined patches of erythema covered with silvery scales. It is controllable but not curable. The symmetry of the eruption and its selective localization aid in the diagnosis which must depend on clinical observations alone. It tends to involve the extensor surfaces and prefers the elbows, knees, anterior aspect of the legs, scalp and sacral regions. Very rarely the eyelids are involved and a superficial keratitis has been reported as an occasional complication. In my two cases the lesions were marginal and somewhat resembled the keratitis of acne rosacea; the corneal attacks coincided with exacerbations of the skin condition.

FIG. 22—Alopecia of the eyelids, with beginning recovery, in a young girl.

About 5 per cent of all cases have associated joint pathology and certain cases of psoriasis arthropathica have been complicated by conjunctivitis and keratitis. In fact, a syndrome somewhat resembling Reiter's syndrome, characterized by polyarthritis, psoriasis of the skin, urethritis and conjunctivitis, has been described.

Albinism is an hereditary disease primarily of the skin and hair. Ocular albinism, whose principal manifestation is partial or complete lack of pigment in the iris and choroid, is generally accompanied by hypoplasia or aplasia of the macula lutea, with resultant poor vision and nystagmus. There may also be errors of refraction, particularly myopic astigmatism, as well as strabismus and cataract.

Albinism is an example of recessive inheritance according to which the defect appears in the offspring only if both parents carry the recessive gene. Parents of affected children usually have normal pigmentation. Consanguinity is found in about 33 per cent of cases. Occasionally the albinism is restricted to the eyes.

Ichthyosis is a common cutaneous disease, congenital and with an hereditary tendency. It is characterized by a persistent scaliness of the skin due to excessive cornification of the epidermis over the entire body. Mild cases may clear at puberty but the severe ones usually persist. The skin of the eyelids and face is usually involved, and epithelial overgrowth on the lid margins may interfere with normal development of the cilia. Occasionally ectropion and lagophthalmos develop. Conjunctival infiltration with papillary hypertrophy has been reported, and corneal changes consisting of fine punctate and linear opacities have been described. Biomicroscopic observations have revealed swelling and roughening of the corneal nerves and chalky deposits along their courses. In the case described by Cordes and Hogan there was unilateral corneal vascularization with pannus involving the lower three fifths of the cornea.

Lichen planus may occasionally involve the eyelids and conjunctiva. It is an inflammatory disease of unknown etiology characterized by an eruption of angular papules, red or lilac colored with white opalescent spots or striae. It has a predilection for the flexor surfaces and the trunk. Acute and chronic forms are recognized and the mucous membranes are affected in about half the cases. Fortunately the rare eye lesions, consisting of conjunctival papillae and mild superficial keratitis, have been uncomplicated. One case of severe choroiditis has been reported but may have been coincidental only.

The term "atypical lichen planus" has been used to designate the dermatitis which may follow prolonged atabrine medication. It was first seen during World War II and closely resembles classic lichen planus. According to Goldsmith, the ocular complications, consisting of blepharoconjunctivitis, conjunctivokeratitis, and cutaneous lesions of the eyelids, are infrequent. He examined 250 cases and found in one a deep keratitis which appeared at the height of the dermatitis and subsided simultaneously with the skin lesions. In another case, complicated by aplastic anemia, he observed a bilateral superficial punctate corneal lesion.

Pityriasis rubra pilaris is a rare condition which may be a form of avitaminosis. The primary lesion is a hard, dry papule at the mouth of a hair follicle, but the lesions become confluent and form plaques. Hyperkeratosis of the palms and soles, and dystrophic nail changes, are common. Reported eye complications include papules on the bulbar conjunctiva, and interstitial keratitis with epithelial erosions.

Progressive facial hemiatrophy, an acquired or congenital abiotrophy, may be accompanied by atrophy of the lids. The congenital type appears shortly after birth; the acquired type may arise after trauma and some cases are associated with scleroderma.

Blepharochalasis is a disease apparently limited to the skin of the upper lid which thins and loses its tone. It often starts with a recurrent inflammatory swelling of the upper lids, usually at puberty. This is followed by a thinning and folding of the skin. The folds are often so large as to overhang the lid margins and interfere with vision.

FIG. 23—Pediculosis palpebrarum of the eyelids showing both nits and pubic lice.

PARASITIC INFECTIONS

Pediculosis palpebrarum, or phthiriasis palpebrarum (fig. 23), is a fairly common infestation of the cilia with pubic lice. The brows may also be involved. A blepharitis of varying intensity is produced by the bite of the parasite and by irritation from its excreta. Diagnosis depends on finding the nits on the cilia, or on finding the adult parasites, usually with their heads buried in the follicles and their claws clutching the cilia. They are semitransparent and best seen under magnification. Head and body lice apparently do not infest the lids or brow.

Trichinosis may display ocular signs which are initially the most conspicuous manifestations of the disease. A surprising number of patients with this disease have first consulted their ophthalmologists because of chemosis of the bulbar conjunctiva and swelling of the lids. Retinal hemorrhages occasionally occur. The skin involvement is limited almost entirely to edema and erythema of the eyelids.

In tropical countries *myiasis*, *leishmaniasis*, and *filariasis* may involve both skin and ocular structures, but these diseases are outside the scope of this survey.

BIBLIOGRAPHY

THE PYODERMAS

Schreck, Eugen: Ekthyma gangraenosum (Krebich) und Auge, Klin. Monatsbl. f. Augenh., 116:35-43, 1950.

Thygeson, Phillips: Etiology and treatment of blepharitis, a study in military personnel, Arch. Ophth., 36:445-477 (Oct.) 1946.

DISEASES OF THE SEBACEOUS GLANDS

Cawley, Edward P., and Curtis, Arthur C.: The rosacea complex, including its ocular component, Am. Pract., 4:119-123 (Nov.) 1949.

Gots, J. S., Thygeson, Phillips, and Waisman, Morris: Observations on pityrosporum ovale in seborrheic blepharitis and conjunctivitis, Am. J. Ophth., 30: 1485-1494 (Dec.) 1947.

Knape, Birgitta: On skin tests with testosterone and desensitization-treatment in cases of keratitis ex acne, rosaceae acne, rosaceae faciei and various forms of keratoconjunctivitis, Acta ophth., 28:339-342, 1950.

Mohamed, I. A.: General pathology of the meibomian glands, Ophth. Soc. Egypt, 30: 127-135, 1937.

Walker, Vera B.: Allergic conditions of the eye. I. Keratitis rosacea, Brit. J. Ophth. 32: 759-767 (Oct.) 1948.

THE ECZEMA GROUP OF DERMATOSES

Kaalung-Jorgensen, O.: Eczema perioculare (dermatitis of the eyelids), Acta dermato-venereol., 31:83-90, 1951.

Nexmand, Poul Helnaes: Clinical Studies of Besnier's Prurigo, Copenhagen, Rosenkille and Bagger, 1948.

Tuft, Louis: Atopic dermatitis—etiology and clinical management, California Med., 73: 233-239 (Sept.) 1950.

Webster, J. R.: Dermatoses which may have an allergic etiologic basis, J.A.M.A. 141: 914-916 (Nov. 26) 1949.

DERMATOSES DUE TO PHOTOSENSITIVITY

Blodi, F.: Cataracta Syndermatotica bei Prurigo aestivalis, Acta ophth., 26:379-384, 1948.

Reese, Algernon B., and Wilber, Inez E.: The eye manifestations of exeroderma pigmentosum, Am. J. Ophth., 26:901-911 (Sept.) 1943.

THE DERMATOMYCOSES

Gordon, D. M.: Ocular sporotrichosis, report of a case, Arch. Ophth., 37:56-72 (Jan.) 1947.

Noojin, R. O., and Praytor, H. B.: Systemic blastomycosis complicated with pregnancy, report of a case, with clinical course and immunologic reactions, J.A.M.A., 147:749-751 (Oct. 20) 1951.

DERMATOSIS DUE TO FILTRABLE VIRUSES

Vaccinia

Atkinson, W. S., and Scullard, Garner: Vaccinia with ocular involvement, Arch. Ophth., 23:584-590 (Mar.) 1940.

Perera, C. A., Vaccinal disciform keratitis following accidental inoculation of the eyelid, Arch. Ophth., 24:352-356 (Aug.) 1940.

Herpes Simplex

Gundersen, Trygve: Herpes corneae with special reference to its treatment with strong solution of iodine, Arch. Ophth., 15:225-249 (Feb.) 1936.

Herpes Zoster

Edgerton, Ambrose Earl: Herpes zoster ophthalmicus: report of cases and a review of the literature, Tr. Am. Ophth. Soc., 40:390-439, 1942.

Verruca Vulgaris

Lane, Clinton W.: Verrucae, a dermatologic problem, J.A.M.A. 144:1361-1365 (Dec. 16) 1950.

de Roetth, A.: Common wart as an etiologic factor in certain cases of conjunctivitis and keratitis, Arch. Ophth., 21:409-420 (Mar.) 1939.

Molluscum Contagiosum

Quill, T. H.: Molluscum contagiosum of eyelid and cornea: report of a case, Proc. Staff Meet., Mayo Clin., 15:139-142 (Feb. 28) 1940.

PIGMENTATIONS

Falls, H. F.: Sex-linked ocular albinism displaying typical fundus changes in the female heterozygote, Proc. A. Research Ophth., 19:41-50, 1950.

Long, J. C. and Danielson, R. W.: Mercurial discoloration of the eyelids, Am. J. Ophth., 34:753-756 (May, part I) 1951.

MISCELLANEOUS DERMATOSES

Cordes, F. C., and Hogan, M. J.: Ocular ichthyosis, report of a case, Arch. Ophth., 22:590-594 (Oct.) 1939.

Goldsmith, J.: Deep keratitis associated with atypical lichen planus, report of a case, Arch. Ophth., 40:138-146 (Aug.) 1948.

Horowitz, S.: Psoriasis vulgaris, report of a case showing skin, joint and eye lesions (keratitis psoriatica), Glasgow M. J., 30: 251-255 (July) 1949.

Knapp, P.: Einseitige Alopecia der Augenbraue, Ophthalmologica, 111:67 (Feb.-March) 1946.

Luhr, Alfred F.: Lichen planus of the conjunctiva, Am. J. Ophth., 7:456-457 (June) 1924.

Michelson, H. E., and Laymon, C. W.: Lichen planus of the eyelids, Arch. Dermat. & Syph., 37:27-29 (Jan.) 1938.

Rössler, F.: Psoriasis of the conjunctiva, Bull. Soc. Ophth., Vienna, 22:42 (Feb.) 1943.

Tóth, Zoltán: Psoriasiseffloressenz am Lidrand, Klin. Monatsbl. f. Augenh., 114:562, 1949.

Vail, Derrick: Corneal involvement in congenital ichthyosis (keratoderma), Arch. Ophth., 24:215-220 (July) 1940.

ASSOCIATED EYE AND SKIN MANIFESTATIONS OF SYSTEMIC DISEASE

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WHETHER the involvement of the vascular system or the bringing of toxic agents of systemic nature to both the eye and the skin makes for the simultaneous appearance of lesions in both as manifestations of general disease, it is true that these two systems mirror general disorders more than those found in any other part of the body. Some of these systemic diseases with skin and eye manifestations will be discussed.

PHACOMATOSES

Tuberous Sclerosis (Bourneville's[8] Disease)

The clinical picture includes epilepsy, mental changes, neurologic symptoms, skin changes and fundus changes.

The most important changes in the skin are adenoma sebaceum (Pringle's disease). It usually occurs in early childhood and consists of a nodular rash on the face, distributed on the nasolabial folds, and spreading upwards on the cheeks and on the nose in a butterfly fashion.

The fundi frequently show greyish white tumors, elevated from 1 to 3 diopters. The description of the typical case is that of a mulberry-like lesion. Two cases that I have recently observed were both in babies less than a year old with convulsions of undetermined cause. The fundi showed cystlike lesions. The first case has been observed for over eight years. There has gradually evolved in the cyst the typical mulberry-like appearance (color plate). In the second case that came to autopsy shortly after observation, the brain showed circumscribed nodules projecting slightly above the surface which were light in color and firm in consistency. Small ependymal tumors were in the lateral ventricles (fig. 1). The heart showed a rhabdomyoma. Histologically, van der Hoeve considered the cells in the disc as neurocytes. There is no known treatment for this disease.

(Rhabdomyoma are frequent; renal tumors are found in 80 per cent of the cases.)

Neurofibromatosis

This is a familial heredodegenerative systemic disease. It is inherited as a mendelian dominant. The skin lesions, molluscum fibrosum, consist of multiple flat or pedunculated, occasionally elephantiasic, tumors. Moles and cafe au lait spots occur. Elephantiasis of the eyelids may appear after birth. Neurinomatous changes can occur in the ciliary nerves, sclera, cornea, uvea and optic nerve. Melanotic nodules may occur in the iris. There is bone involvement in 70 per cent

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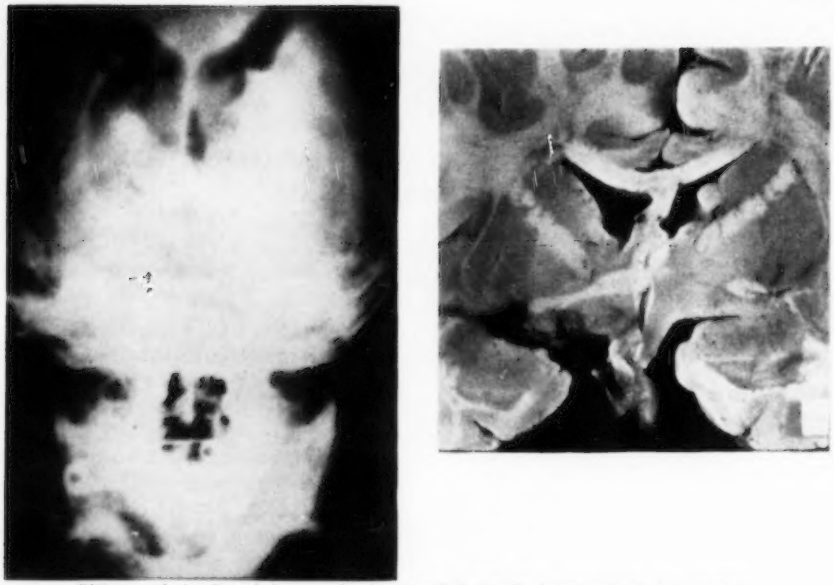


FIG. 1.—(Left) Encephalogram showing so-called "candle-droppings" of the ventricle. (Right) Subependymal tumors in the lateral ventricle in tuberous sclerosis.

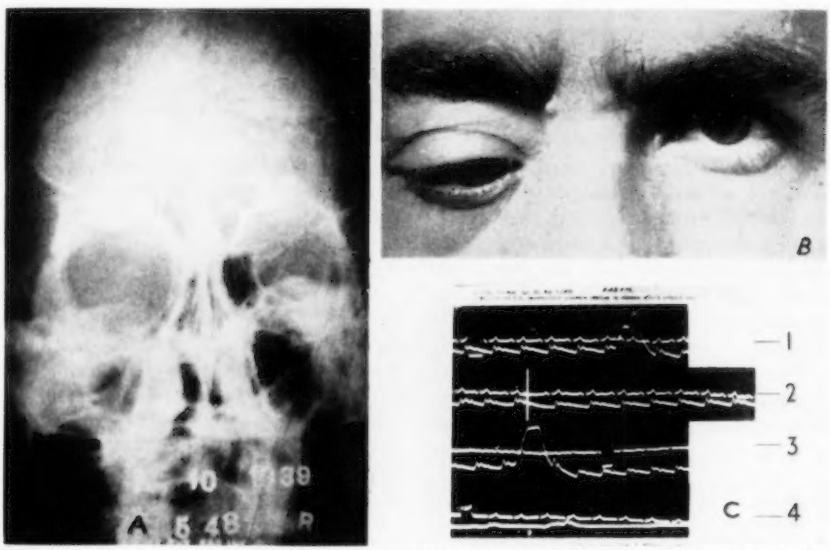


FIG. 2.—A. Complete absence of both the greater and the lesser wing of the sphenoid in neurofibromatosis; B. Pulsating exophthalmos due to absence of the roof of the right orbit; C. Changes in intracranial pressure as observed after coughing by means of tambour placed against the exophthalmic eye and connected to electrocardiograph. 1. Effect of cough. 2. Effect of inspiration and expiration. 3. Effect of cough on abnormal left eye. 4. Effect of cough on right extraocular pressure.

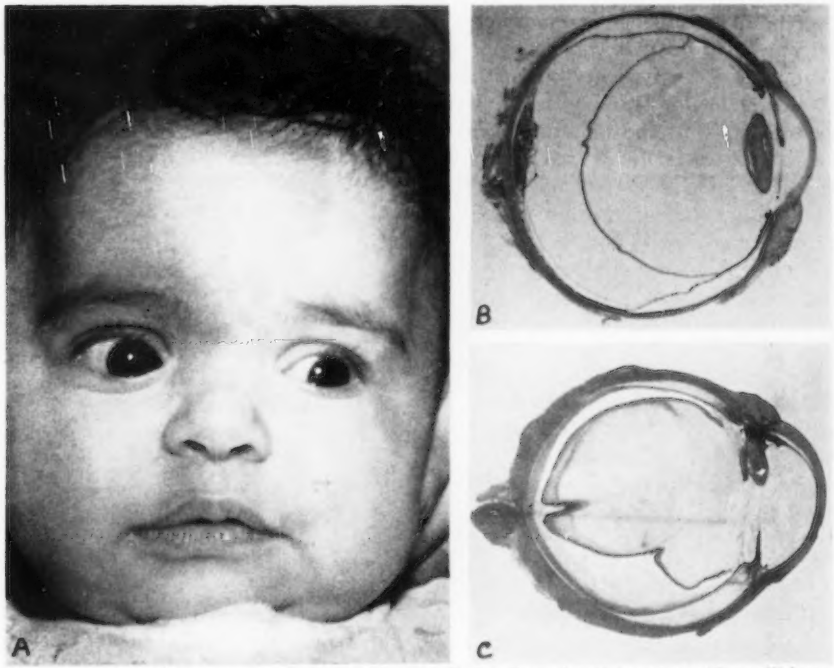


FIG. 3—A, Nevus flammeus and glaucoma, right eye; B, Localized choroidal angioma (Sturge-Weber); C, Diffuse angiomatosis of the choroid.

of the cases. Tumors of the retina have been reported by van der Hoeve[24] and Stallard.[35]

A case with complete absence of the roof of the orbit due to a complete absence of both the greater and lesser wings of the sphenoid on the right side as verified by autopsy was seen. Pulsating exophthalmos was present, as was paralysis of the elevators (fig. 2A and B).

Oscillatory tracings, by means of a tambour and electrocardiograph machine, of accompanying increased intracranial pressure as occurs in deep respiration and coughing was carried out and demonstrated these changes graphically (fig. 2C).

Sturge-Weber-Krabbe Disease (Meningo-cutaneous Angiomatosis or Encephalotrigeminal Angiomatosis)

The fully developed syndrome shows (1) nevus flammeus of the face involving the cutaneous and conjunctival distribution of the trigeminal nerve (fig. 3A); (2) glaucoma of either infantile (buphthalmic) or adult type; and (3) neurologic signs: jacksonian epilepsy affecting the opposite half of the body, hemiplegia, dyspituitarism and meningeal telangiectasia which may be calcific.

The first association of facial telangiectasia and infantile glaucoma was reported by Schirmer (1860). The association of facial nevus, glaucoma and

cerebral disturbance was noted by Sturge[37] in 1879. Roentgenologic confirmation of the meningeal telangiectasia was presented by Weber[43] in 1929. According to Joy, the literature includes about 200 cases. In 25 cases histologic examination has been made. In many patients roentgenograms of the skull reveal a peculiar gyriform double-contoured calcification in the region of the occipital lobe usually on the side of the facial nevus. This calcification is localized in the second and third layers of the cerebral cortex and is not pathognomonic. This disease is a systemic disease in that it is a malformation which involves the small vessels in widely separated areas: the brain, the pia mater, the eye and the skin. The vascular nevi occur in the face in the area of distribution of the trigeminal nerve, but may occur near other cranial nerves and may involve mucous membranes. Both sides of the face are occasionally involved. Bilateral glaucoma with bilateral nevi of the face as well as bilateral glaucoma with a unilateral nevus of the face has been reported. Angioma of the choroid occurs and is implicated in the glaucoma. Glaucoma is usually of infantile (buphthalmic) type with enlargement of the globe (70 per cent). The adult type of glaucoma (30 per cent) may develop at any age. Berliner and Breinen[5] suggested as aids in the diagnosis of choroidal angioma, the fact that hemangiomas increase in size during menstruation and pregnancy, and the use of angiography. Both are theoretical and have not as yet been verified.

Streeter showed that in the development of blood supply to the brain the vascular system splits into an inner layer serving the brain and retina and an outer layer serving the meninges, choroid and face.

There are four theories as to the cause of the glaucoma: (1) choroidal angiomas (fig. 3B and C); (2) increased protein content of the aqueous, increased production of aqueous with increased premeability of the ciliary vessels; (3) nervous influence; the lesions follow the trigeminal distribution; and (4) congenital obstruction of the angle as in hydrophthalmos.

COLLAGEN DISEASES

Acute Disseminated Lupus Erythematosus

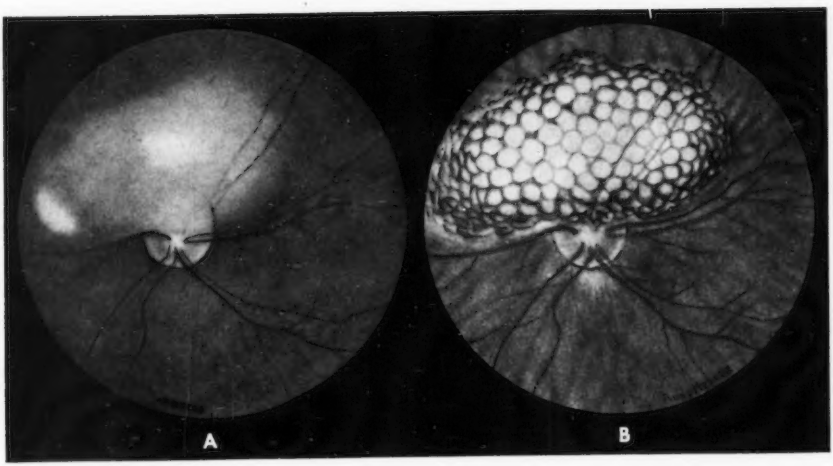
Ophthalmoscopic manifestations: (1) small, fluffy, yellow-white to white spots located in the superficial layers of the retina similar in appearance to cotton-wool spots; and (2) small superficial retinal hemorrhages; histologic study shows cytoid bodies in the nerve fiber layer. Klemperer has written on degenerative changes that occur widespread throughout the mesenchymal tissues in the form of fibrinoid alterations of the collagen fibers and the mucinoid nature of the extracellular ground substance. This has led to the development of the concept of the collagen diseases.

Similar changes are known to occur in scleroderma and dermatomyositis. The etiology is unknown. Distinctive pathologic features of acute lupus erythematosus include: (1) endocardial vegetations; (2) periarterial fibrosis of the spleen; and (3) wire looping of the renal glomeruli; hyaline thickening of the walls of the glomerular capillaries (fig. 4A, B and C).

LEGEND FOR COLOR PLATE

A. Retinal cyst as seen in tuberous sclerosis. Patient, aged 8 months.

B. Transformation of the cyst into the so-called "mulberry mass" of tuberous sclerosis. Patient, aged 8 years.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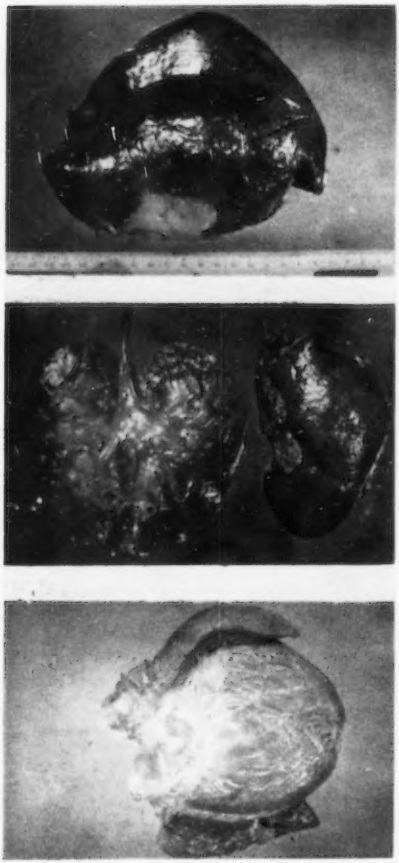

FIG. 4—A. Gross specimen of the spleen which showed periarterial fibrosis; B. Gross specimen of the kidney which showed "wire-looping" of the renal glomeruli; C. Endocardial vegetations in acute disseminated lupus erythematosus.

Certain hematoxylin stained bodies that occur in the endocardium and kidneys have been subjected to intensive study by newer cytochemical technics and identified as altered nuclear material in the form of depolymerized desoxyribose nucleic acid.

In 1948 Hargraves[21,22] observed a peculiar phenomenon that appears in the bone marrow removed from persons with acute lupus erythematosus. The essential features comprised agglutination of cells, nucleolysis and phagocytosis of homogenous material by leukocytes with formations of so-called "L. E." cells (fig. 5B). Haserick[23] found that when blood plasma from such patients was added to leukocytes in vitro, or to bone marrow from normal persons or even to dog marrow, the same reaction took place. The responsible factor was found to be associated with the gamma globulin factor of the plasma; the effect is inhibited by heat, bacterial contamination or by addition of para-aminobenzoic acid or antibodies developed in the rabbit against the gamma globulin of the plasma of a patient with acute lupus erythematosus.

The specificity of the immune reaction applies to only the acute stage of the disease, a finding confirmed by others. Recently Lee and his co-workers have identified the contents of the "L. E." cells with the modified nucleic acid found in the hematoxylin stained bodies.

Theories as to whether the male possesses some protective function or the female a more catalytic accelerating factor are interesting but not confirmed. One third of the acute lupus erythematosus cases have had a chronic phase with discoid lesions, according to McCreight and Montgomery.

There is an elevation of serum globulin. The disease may be fatal in 12 to 18 months from intercurrent infection or renal or cardiac failure. Gold and bismuth are contraindicated. Testosterone used to restrict loss of protein and to temper the course in women has been tried.

Before this clinical syndrome is sufficiently well developed to permit diagnosis, a fundus examination may lead the internist to the correct diagnosis. Wagener[42] has stated, "It seems possible that from more universal studies of the

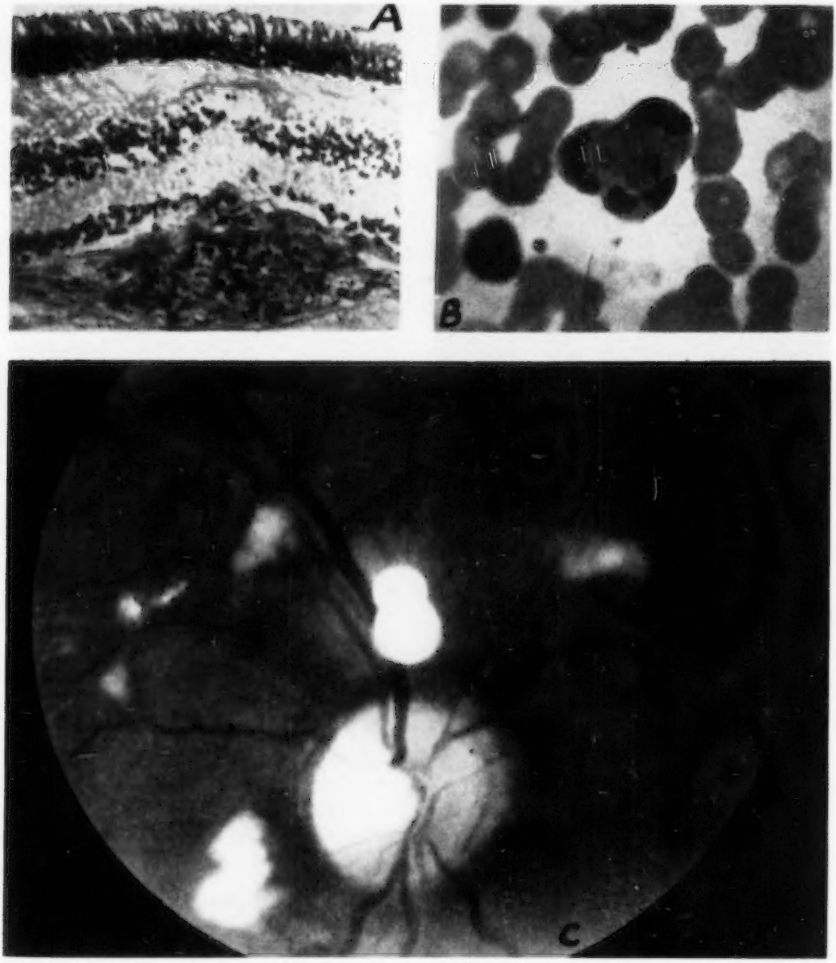

FIG. 5—A. Varicosity of the nerve fiber layer; B. typical "L.E." cell; C. Fundus picture of acute disseminated lupus erythematosus. Note striation of the exudate.

retina in these cases, a reasonable characteristic picture might evolve. In my experience the toxic retinopathy is most frequently encountered. Gross involvement of the retinal vessels is much less common." Keil advanced the vascular concept of the disease. He assumed the presence of a theoretic toxin that has a selective affinity for the vascular system, chiefly the capillaries. Renal involvement occurs in practically every case.

In these cases where the retina showed involvement the presence of some form of exudate was regularly found. Kurz in 1938 was the first to demonstrate the histology of the white patches, namely varicosities of the nerve fiber layer (fig. 5A).

In 5 cases I have observed, the striate appearance of the exudate indicating its localization in the nerve fiber layer has been sufficiently impressive to lend diagnostic import in less developed and less definite cases. Whereas the diagnosis depends chiefly on the cutaneous lesions, occasionally no cutaneous lesion may be present.

Such a case is that of M. F., a man aged 33. His original complaint was disturbance of vision and edema of the bulbar conjunctiva. The symptoms had come on after being in the sun in Florida. He subsequently developed loss of appetite, nausea and low grade fever, followed by pronounced ascites, hydrothorax and marked fluid accumulation in the pericardium.

His physician suspected acute lupus erythematosus and referred the patient for a fundus study. Both retinas were filled with many exudates each of which had a striate appearance diagnostic of a nerve fiber localization (fig. 5C). Eight months later a rash appeared on the cheek that was diagnosed as part of the lupus erythematosus picture. A year later the patient died. He showed endocardial vegetation, and "L. E." cells had been found prior to his demise.

Other cases that have come to autopsy emphasize the need for bearing this diagnosis in mind when striate exudates in a patient with no hypertension or vessel attenuation are observed in a case of continued fever. The aggravation of the skin lesions by sunlight and sulfonamides lends further information leading to the diagnosis of acute lupus erythematosus.

In a report by B. H. Pastor et al.[31] of lupus erythematosus in the male, 27 per cent of cases seen at Philadelphia General Hospital from 1936 to 1949 were males (10 of 36 cases). One of the most consistent early clinical features was arthritis, frequently mistaken for early rheumatoid arthritis or rheumatic fever. The subsequent involvement of the renal and cardiovascular systems and the polyserositis and the progressively downhill course was helpful in differentiating lupus erythematosus from these clinical entities.

Dermatomyositis

This disease is characterized by degeneration of many of the muscles of the body together with a nonsuppurative inflammation and atrophy of the skin and mucous membranes. It is one of the collagen diseases. Involvement of the retina occurs and has been reported by Bruce[9] and Lisman.[28] It may appear acutely with severe and rapidly progressive symptoms or it may be seen in a subacute or chronic form with remissions and exacerbations and sometimes complete recovery. The chronic form is usually insidious in onset with fever of low degree, malaise, anorexia, loss of weight and weakness. A rash is usually associated with it at some stage and is variable. The most characteristic cutaneous lesion is patchy erythema, which is faintly indurated, slightly scaly and dry. Keil noted a characteristic facies composed of two elements; (1) definitely swollen eyelids with some swelling of the adjacent portion of the cheek and nose; and (2) a background of faint rosy or pale blue skin. Weakness of the trunk and the extremities as well as hoarseness and dysphagia may occur. Subcutaneous edema is a common finding and may be firm or pitting.

In the average case the eyelids represent the first tissue to be involved and the appearance is important. As a rule the lids are swollen and pink. The rosy hue is due to numerous, closely set telangiectases (fig. 6A and C).

The lids may be tender to the touch owing to involvement of the orbicularis oculi. The edema of the lids is differentiated from that due to glomeruloneph-

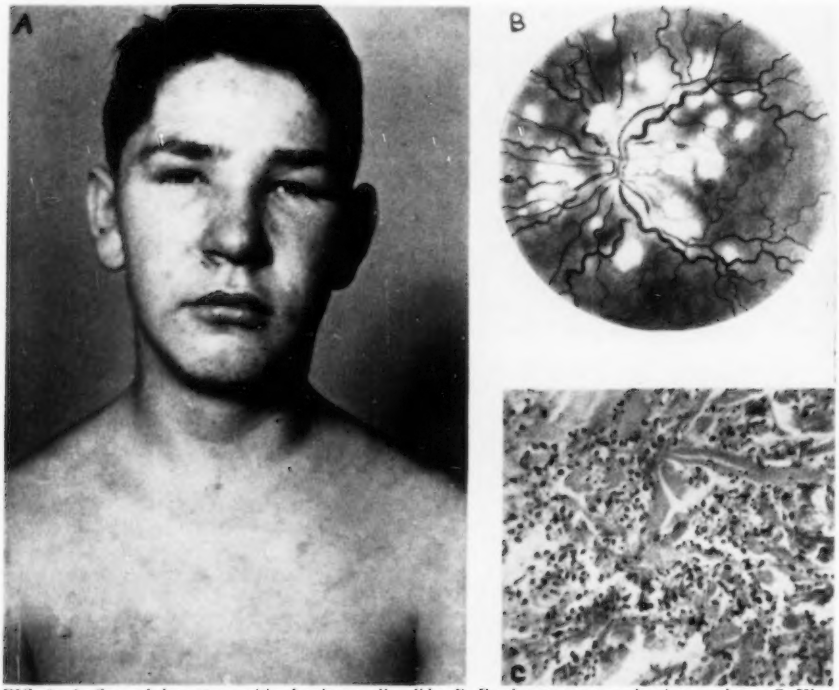

FIG. 6—A. Case of dermatomyositis showing swollen lids; B. Fundus appearance showing exudates; C. Histology of lid muscle showing loss of striation and granulation of the sarcoplasm.

ritis by the absence of renal involvement and the telangiectases. The conjunctiva may be hyperemic. Paralysis of the extraocular muscles has been reported as well as ptosis, iritis, nystagmus and exophthalmos. Retinal hemorrhages and exudates were first noted by Bruce[9] (fig. 6B). The exudates do not usually have the striate appearance characteristic of acute lupus erythematosus. A case reported by DeVries,[14] however, showed a nerve fiber localization of the exudates.

Scleroderma

This is a chronic disease that is classified with the collagen diseases. It is characterized by a circumscribed, localized (morphea) or general and more or less diffuse, usually pigmented, rigid, stiffened indurated or hidebound condition of the skin (fig. 7, top).

The diffuse type begins insidiously or rapidly. The surface of the skin is tense looking and sometimes shiny. The process extends and after weeks, months or years finally involves one or more regions or the greater part of the entire surface. If the limbs are involved, they are stiff and immobile and later become shrunken and withered, with the underlying muscles also atrophying. If the face is involved, the countenance is immobile. Some cases may be ushered in with chills and fever, but this is not the common course. Rheumatoid arthritis, pigmentation and local pain may be associated. The course is essentially chronic. The disease is not common in the diffuse type. It is chiefly found between

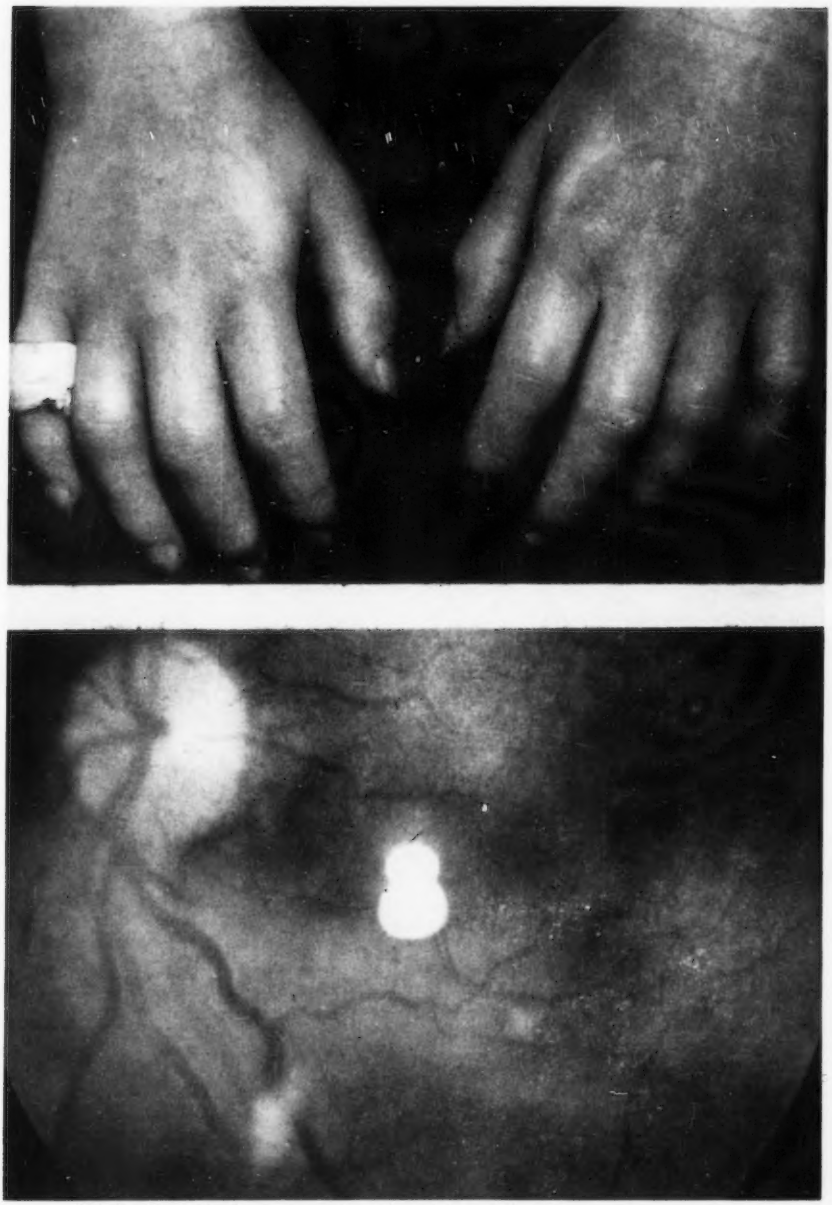

FIG. 7—(Top) Hands showing indurated condition of the skin.
(Bottom) Fundus appearance in scleroderma showing striate exudate.

the ages of 15 and 45 years in both sexes, possibly more often in the female. The cause is undetermined. Pathologically the changes are first seen in the collagen. Both in the true skin and subcutaneous tissue there is marked increase of the connective tissue element with thickening and condensation.

Werner's disease is a rare syndrome characterized by sclerodermatous changes in the skin, precocious graying of the hair, dystrophies of teeth and nails, bilateral juvenile cataract, premature senility and various endocrine disorders.

It is a heredofamilial disorder with a history of consanguinity. The cataract is cortical and similar in many respects to the cataract in atopic dermatitis. The anterior cortex is often enmeshed with fine fibrils while the posterior cortex has a stellate opacity. Endocrine dysfunction is common.

Howard Agatston recently had a case (unpublished) with the retinal appearance not dissimilar to that found in dermatomyositis and acute disseminated lupus erythematosus (fig. 7, bottom). Fluffy exudate was found in the retina with some striations suggestive of acute lupus erythematosus. This must be a rare finding, but one not unexpected in that scleroderma is one of the collagen diseases.

PERIARTERITIS NODOSA

The general picture is that of a subacute illness with remissions and acute exacerbations generally associated with fever, tachycardia, weakness and acute pains in various regions. Eosinophilia is commonly present, suggesting hypersensitivity as an etiologic factor. Rich[33] has shown that hypersensitivity to serums and sulfonamides may result in periarteritis nodosa. The disease may progress rapidly and terminate fatally within a few weeks, but many cases have been described recently in which the disease lasted a few years. Several recoveries have been reported.

Histopathologically, a necrotizing arteritis or fibrinoid necrosis of the arterial wall has been found. The arterioles, smaller arteries and often the veins may be involved. The necrosis occurs in the media and intima, usually in a segment rather than the entire circumstance of a vessel.

The disease occurs from childhood to old age, males over females, 4:1. The skin manifestations vary from simple erythema to erythema multiforme or erythema nodosum, urticaria and even purpura. Subcutaneous nodules develop which occasionally are followed by vesicular, pustular or necrotic lesions depending on the size of the vessel involved and the situation and depth of the nodule. The lesions may be single or multiple and may occur along the course of a superficial artery. They usually are painful to pressure.

In 80 per cent of the cases the kidneys are involved. This may lead to a general arterial constriction and to an increase in blood pressure. Retinal changes simulating diffuse nephritis may occur, but the eye involvement is not common. Goldsmith found that 81 per cent of cases show no change in the fundi, 19 per cent show different stages of angiospastic retinitis. Yellow elevations beneath the retina may correspond to periarteritis nodosa nodules of the choroid.

Widespread retinal detachment has occurred. A picture similar to eclampsia with hypertensive retinitis and retinal detachment has been reported as well as bilateral closure of the central retinal artery. Lesions have occurred in the extraocular muscles, producing paresis. Ring ulcer of the cornea and perforating necrosis of the sclera have occurred.

Biopsy of a nodule may confirm the diagnosis. As to treatment, freeing the

FIG. 8.—Pseudomembranous conjunctivitis in Stevens-Johnson disease.

patient from contact with the antigen to which he is hypersensitive may be of value. Cortisone may be of temporary aid. Histologically, two cases with complete healing of all arterial lesions after cortisone were reported by Baggenstoss et al.[3] Both patients eventually died of cardiac and renal failure.

OCULAR MUCOUS MEMBRANE SYNDROME OF ERYTHEMA MULTIFORME

Robinson et al.[34] suggest the above title as a symptom complex in which lesions occur in the eye and on one or more mucous surfaces. They believe Stevens-Johnson[36] disease, ectoderma erosiva plurio-orificialis[15] and even Behcet's disease[4] describe a picture which is a variant of erythema multiforme.

Agreement on all features but the inclusion of Behcet's disease has been reached. Against the inclusion of Behcet's disease are the arguments of Helen Curth. She points out that hypopyon uveitis and not symblepharon are ocular findings in Behcet's disease. As to the skin and mucous membrane lesions, she points out the relentless recurrence of aphthous lesions at irregular intervals in Behcet's disease and states that she hesitates to make the diagnosis if only one attack has occurred. In Behcet's disease one finds cutaneous infections such as boils, pyodermata, sycosis and, not uncommonly, seborrheic eczema.

As long as the exact etiologic agent is unknown, the pros and cons are without firm foundation, as we all know Besnier's dictum that the skin may react to the same morbid agent in a variety of ways.

In erythema multiforme exudativa, the cutaneous lesions may be erythematous to papular or vesiculobullous in type. Although uncommon, the disease is met with in several members of a family, but there is no definite evidence that it is transmitted from one person to another. In the ordinary papular type the mucous membranes are generally spared, but in the vesiculobullous form oral features may be the most striking feature of the disease.

The hemorrhagic element marked in lesions on the lip is characteristic.

STEVENS-JOHNSON DISEASE (FIG. 8)

Whereas no age seems to be spared, children are apparently predisposed to the graver forms of this condition. In severe cases, membranous or pseudomembranous conjunctivitis occurs as well as purulent conjunctivitis. It is in this latter group that blindness occurs following ulcerations of the cornea with perforation and panophthalmitis. Anderson and his co-workers[2] succeeded in isolating an agent capable of producing keratoconjunctivitis on the scarified cornea of a rabbit. This agent was isolated from the vesicular fluid obtained from a patient with erythema multiforme of the bullous type. Cytoplasmic inclusion bodies were observed in the epithelial and exudative cells of the rabbit cornea with keratitis. These observations together with the improvement noted in some cases after aureomycin suggest a viral etiology.

All cultures reported in the literature of the conjunctiva, corneal ulcers or from the vitreous in cases of panophthalmitis with this disease showed Staphylococcus aureus. This has been my experience in 6 cases seen. It is probable that the reduced vitality of the tissues allow this commonly present organism to attack both the eye and the skin. Cavara[11] stated, speaking of the skin, that a virus makes the body more susceptible to infections with Staphylococcus.

The precipitating factor may be anything which disturbs the normal metabolic functions of the body, such as drugs to which the individual may be sensitive, a focus of infection, food allergy or changes in external physical conditions.

Stevens and Johnson's (1922) original criteria were a generalized maculopapular eruption, purulent conjunctivitis with corneal ulcerations and ulceromembranous stomatitis.

Behcet in 1937 gave the syndrome the name of triple symptom complex (fig. 9), but cases had already been reported by Bluthe[7] in 1908, Adamantiades[1] in 1931, and Dascaloupoulos[13] in 1932. The syndrome included genital, oral and ocular lesions.

Ectoderma erosiva plurio-orificialis, first described by Fiessinger and Rendu[16] and Fiessinger, Wolff, and Thévenard,[15] had as its original criteria ulcerative stomatitis, mild conjunctivitis, varicelliform eruption with purpura on the extremities and balanitis.

Recent cases have spoken of the benefit observed with the use of cortisone systemically.

VOGT[41]-KOYANAGI[25] (HARADA'S) DISEASE

The trend today is to consider Harada's disease (fig. 10A, B and C) as Vogt-Koyanagi with the distinguishing characteristic of bilateral retinal detachment as a differentiating finding. Carrasquillo[10] has well summed up the findings of alopecia in 53 per cent of cases, poliosis in 82 per cent of reported cases, vitiligo in 62 per cent and dysacousia in 50 per cent. Nontraumatic bilateral uveitis accompanied by one or all of

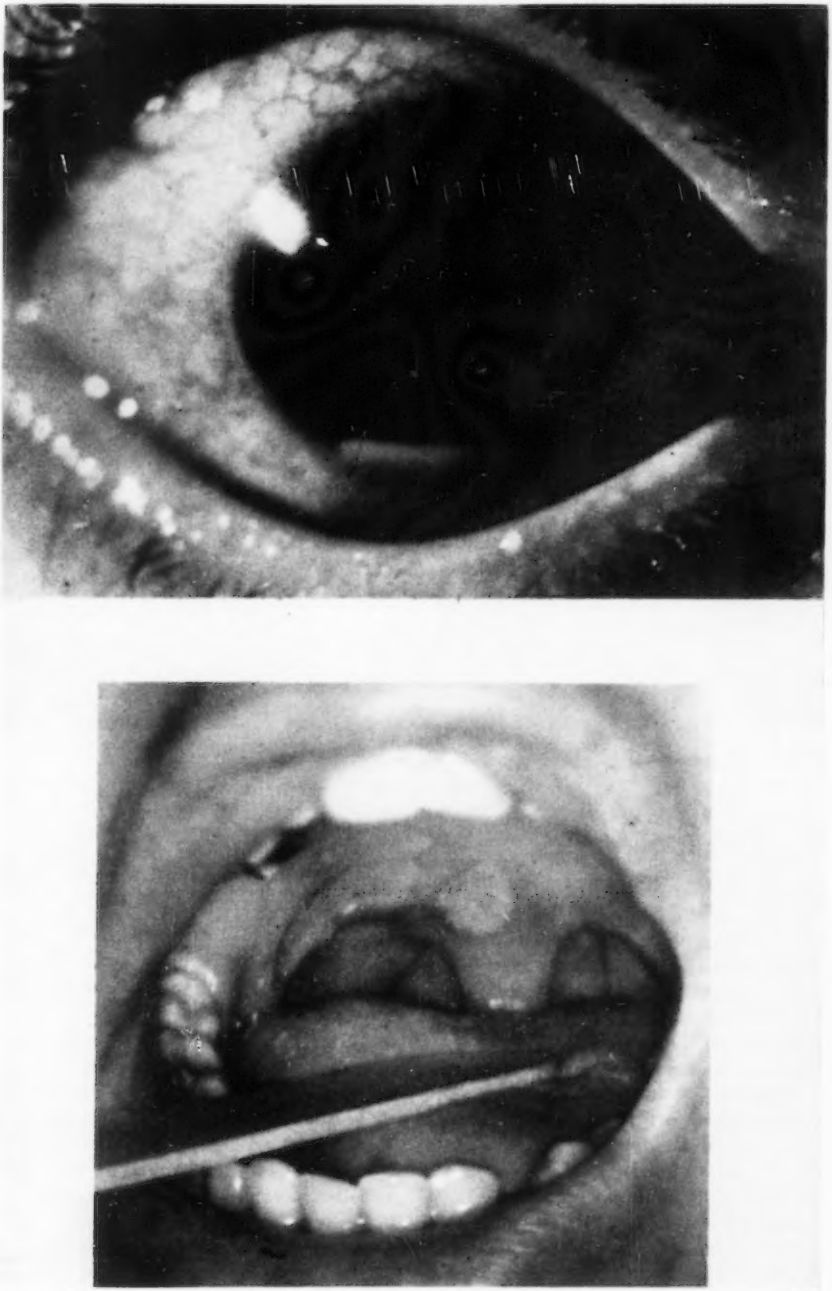

FIG. 9.—Top, Hypopyon uveitis in Behcet's disease; Bottom, aphthous ulcers of the palate in the "triple symptom complex."

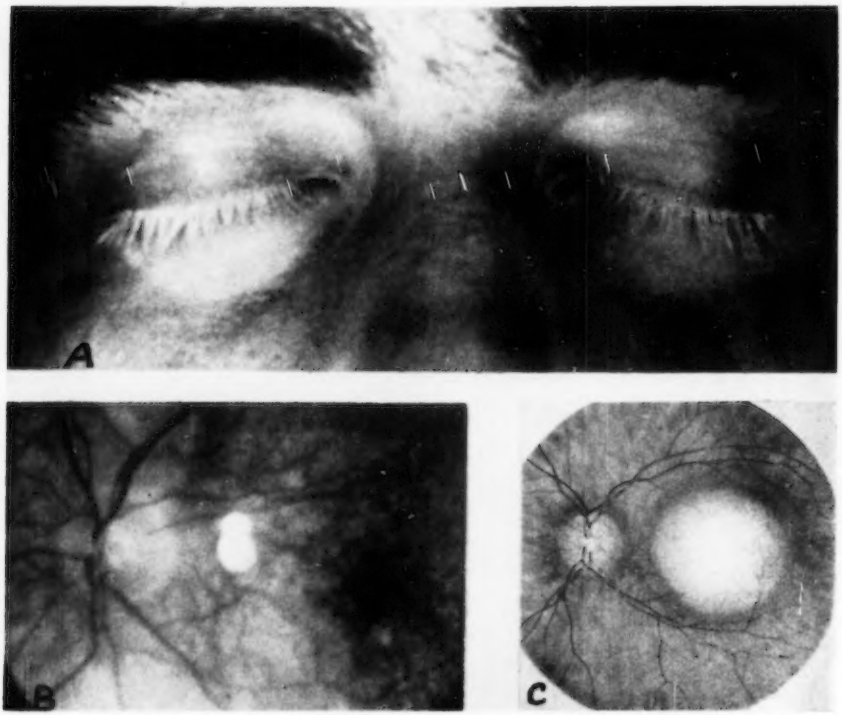

FIG. 10—A. Poliosis and vitiligo in Harada's disease; B. Reattached retina after subsidence of the acute uveitis; C. Detachment of the retina in the macular area.

these symptoms should place the disease in this category. The etiology is still not definitely determined even though there are many suggestions that it may be of viral origin. The use of cortisone locally and systemically seems to be of value. At the present time a case of Harada's disease is responding well to this therapy, but, since the disease may run its course without cortisone therapy it is hard to evaluate its true value. The retinal detachments reattach and if not too much detachment has occurred in the macula and secondary glaucoma has not intervened in an uncontrollable fashion a fair recovery of vision can be expected. A recent case that I have seen in which viral cultures of aqueous and spinal fluid were done, gave negative results, but this should not be taken as finality even though the cultures were made during an active phase.

Cutaneous testing with pigment shows a positive reaction similar to that seen in sympathetic ophthalmia in about one third of the cases.

AMINO ACID DEFICIENCY

In studying the effect on the eye of individual amino acid deficiencies it was found that valine produced a corneal dystrophy. This change was reversible and disappeared after the administration of valine (fig. 11). Two cases of exfoliative dermatitis with corneal changes similar to those seen in valine deficiency

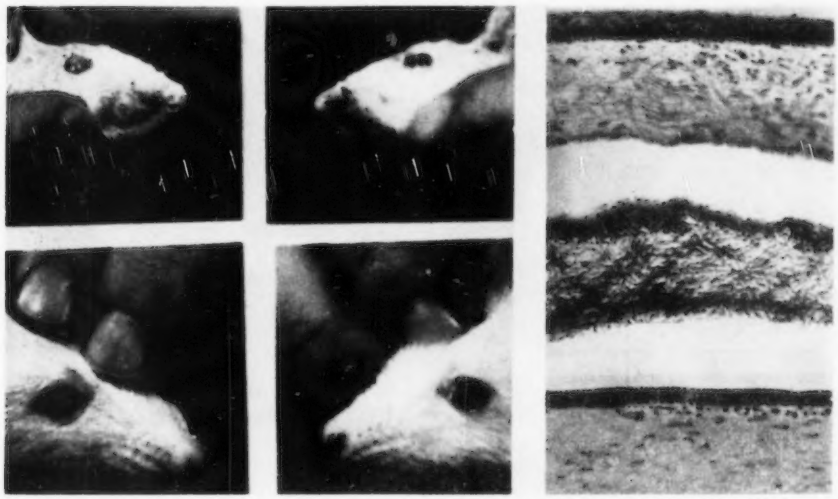

FIG. 11—Left upper, gross appearance of corneal dystrophy in valine deficiency; Left lower, return to normal after administration of valine; Right upper and middle, histologic changes in corneal epithelium in valine deficiency; Right lower, normal histology after valine administration.

were observed. Subsequent to the parenteral administration of amino acids, aminoids by mouth and a high protein diet, however, the cornea began to clear and eventuated in complete clearing with restoration of 20/20 vision from 20/100 in the right eye and 20/40 in the left eye in one case. In the second case vision returned to normal from 20/50 in both eyes. In both cases total protein was reduced showing predominantly in the albumin fraction (total protein 4.9 gm. per 100 cc., albumin 2.9, globulin 2).

VITAMIN DEFICIENCY

Vitamin A deficiency may produce dry, scaly, loose skin with follicular hyperkeratosis. In the eye, dark adaptation is delayed and night blindness may be complained of. Bitot's spots are found near the limbus as dry patches covered with a peculiar foamlike substance. They occur principally in children and are triangular in shape and have the base toward the limbus. They are not, however, pathognomonic of avitaminosis A, having been reported in the absence of such a deficiency in tropical countries. Persistent and intractable cases of blepharokeratoconjunctivitis should suggest the possibility of vitamin A deficiency. Xerosis with its change in the epithelium of a metaplasia form (columnar epithelium becoming stratified) may occur. The first sign is lack of luster. This may be associated with wrinkling of the conjunctiva due to a loss of elasticity, first evident in the palpebral region. In the cornea the earliest changes may be a loss of luster, a dryness when exposed to the air and a reduced sensitivity over the entire tissue. If the condition advances, keratomalacia may develop, particularly in extreme cases of famine or due to faulty absorption or conversion of vitamin A.

Vitamin B_2

Fissures at the corners of the mouth can be related to a deficiency of this vitamin.

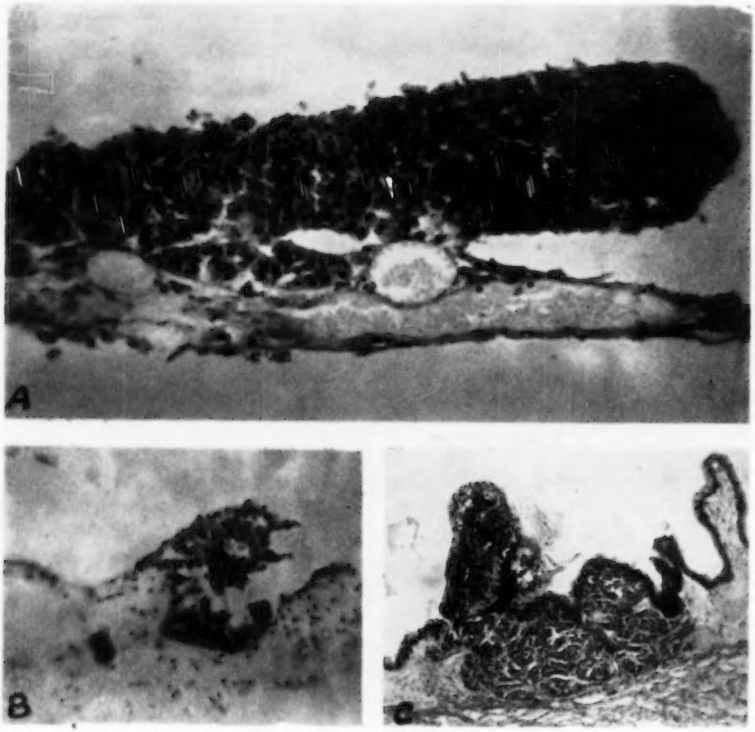

FIG. 12.—A. Metastasis to choroid; B. Metastasis to iris; C. Metastasis to ciliary body of melanoma of the skin (Givner and Lisa).

Ocular manifestations of ariboflavinosis are best seen with the aid of the slit lamp. There is a superficial vascularizing keratitis. This appears when riboflavin is withdrawn and disappears during its administration. This point is still disputed. Photophobia and dimness of vision not corrected by refraction is the most frequent symptom. Burning sensations of the eyeballs, roughness of the eyelids and extreme visual fatigue are common. The earliest sign is circumcorneal injection. There is an actual invasion of the cornea by the capillaries from the limbic plexus. A case of parenchymatous keratitis improved with riboflavin given parenterally as the only therapy has been reported by Das Gupta.[12]

MELANOMA OF THE SKIN WITH INTRAOCULAR AND ORBITAL METASTASES

It has been stated by Virchow that organs which are the frequent site of origin of primary cancer are prone not to have metastatic growths. Although there are many exceptions to this statement, the rule seems to apply with peculiar force to the melanotic malignant growths of the eye. Most of the melanomas of this organ are known to be primary in the choroid. Only a few have been reported as metastasizing to the eye from other organs. I have recently collected eight cases producing intraocular metastases including one of my own. This case occurred in a melanotic tumor that arose in the skin. This pa-

tient gave a history of a painful "strawberry" mass appearing in the skin of the right posterior wall of the chest two years previously. The growth was excised surgically. The patient remained in good health for 18 months. At the site of the previous operation another mass appeared, followed by swelling in the axilla. Histologic examination showed metastatic malignant melanoma of the lymphatic nodes. As a part of a generalized metastasis, the eye showed lesions in the iris, ciliary body, choroid and orbit (fig. 12 A, B and C).

Although most melanotic tumors of the eye are primary, the possibility should be borne in mind that they can be secondary and careful search made for other primary sites and evidence of multiple metastases.

KAPOSI'S VARICELLIFORM DERMATITIS

Kaposi in 1887 defined the disease which is a specific varioliform manifestation of herpes. The skin lesions resemble smallpox and chickenpox (fig. 13, top). The onset is sudden and new lesions appear for several days. Umbilicated erythematous vesicular elements rapidly develop on the face, head, neck, elbows and wrists. They become pustular and desiccate. Scarring is common. Fever precedes the eruption by 24 hours and persists for one to two weeks followed by lysis.

Of 67 cases, 53 had atopic dermatitis preceding. Barton and Brunsting demonstrated the herpes virus in one of their patients as did Francis Lynch and his co-workers. This disease is now known to be a clinical syndrome characterized by a virus infection superimposed on a chronic dermatitis, usually an atopic eczema. The responsible virus is either the herpes simplex virus or the vaccinia virus. When the etiologic agent is known the disease is more aptly called "disseminated herpes simplex" or "generalized vaccinia."

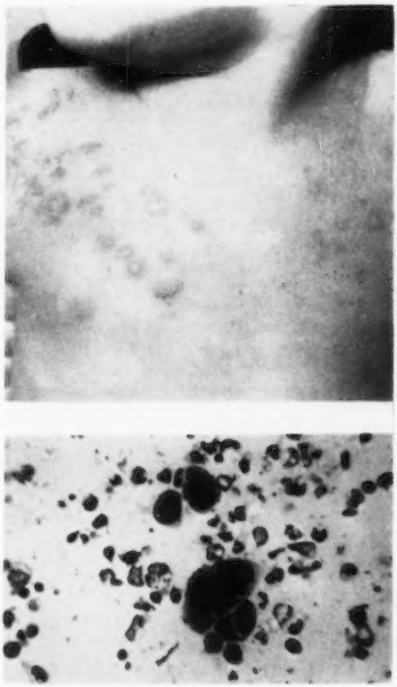

FIG. 13.—Top. Skin lesions in kaposis varicelliform dermatitis, resembling chicken pox; Bottom. Virus type giant cell seen in herpes simplex, herpes zoster, and varicella.

In the past the two virus infections of the skin could usually be differentiated only by specialized laboratory procedures or by the microscopic demonstration in biopsies of early vesicles of the inclusion bodies characteristic of herpes simplex (Lipschütz bodies) or of vaccinia (Guarnieri bodies). Tzanck[40] has proposed a technic for demonstrating the "virus type giant cells" in smears prepared from the base of the vesicles that make it possible to establish the diagnosis of herpes simplex with ease. Such cells are seen only in herpes simplex, herpes zoster and varicella (fig. 13, bottom). Blank et al.[6] has confirmed the accuracy and simplicity of this procedure which is feasible in any medical laboratory.

Technic: The bulla is sponged with alcohol, the blister is incised, and excess fluid is removed. Base of blister is gently but thoroughly scraped. Gross bleeding is prevented by pinching the base of the lesion. Material is spread on slide and dried in air, stained with Giemsa stain using distilled water with pH of 7. For control, smears have been examined from all other diseases of skin and mucous membranes characterized by vesicles and bullae, such as variola, vaccinia, erythema multiforme and pemphigus. No cells of this type were found.

As to eye involvement, I have seen 3 cases in which dendritic keratitis appeared. In one case it was bilateral and responded to aureomycin locally. The other two cleared with curettage and iodinization.

GRANULOMATOUS DISEASES

Boeck's Sarcoid

This is a chronic, relatively benign disorder of unknown cause with particular predilection for the lymphatic tissue or the reticuloendothelial system. The two main types of cutaneous lesions associated with the disease, the superficial and the deep, have a predilection for the face, the external surfaces of the arms and shoulders and the trunk but may be found in other areas. The superficial lesions are papular and nodular elevations varying in size from that of a pinhead to that of a pea. They are sharply outlined, dark red and may be surrounded by adherent scales. The larger lesions are subcutaneous and nodular and have either faint or surrounding erythema. The eye is one of the favorite sites of the disease (50 per cent of sarcoid patients show ocular involvement) and many patients first consult the ophthalmologist. The most frequent lesion is an inflammation of the anterior portion of the uveal tract. In Levitt's[27] analysis of 43 cases of ocular sarcoid the lids were affected in 7 patients, the conjunctiva in 6, the lacrimal gland in 9 and the uveal tract in 28. According to Woods and Guyton between 5 and 10 per cent of uveitis is due to sarcoid.

Lids. Small nodules of sarcoid may occur, occasionally resembling chalazia.

Lacrimal gland. Painless, nodular swelling, not attached to the skin. May be unilateral or bilateral. May be connected with enlargement of submaxillary, salivary and cervical lymph glands, with or without uveitis. Occasionally parotid glands may be involved (Mikulicz syndrome) (fig. 14A). At times sarcoids may take on the form of Parinaud's oculoglandular syndrome (fig. 14B).

Iris. Characteristically nodular, painless with slight inflammatory signs. Usually larger, pinker and more vascular than tubercles. Large KP's of the mutton fat type may be present. Retinal lesions may occur. Negative tuberculin, characteristic changes in hands and feet as evidenced by roentgenograms. So-called "naked" tubercles without caseation (fig. 14C), increase in plasma globulins. (Rarefaction and reticulation of the medulla of the long bones, especially the phalanges.) Lung changes showing fibrosis radiating out from the hilus especially in the lower fields occur. Ten per cent of the patients may later develop tuberculosis.

Franceschetti and Babel[17] described lesions of the choroid, retina (internal layer), sclera and optic nerve. The lesions showed a center of epithelioid cells surrounded by lymphocytes.

Boeck in 1899 first described the skin lesion microscopically. In 1889 Besnier called it lupus pernio. Kienbock (1902) described the cysts in the bones of the fingers. Heerfordt (1909) noted involvement of the uveal tract and parotid gland. In 1941 Schaumann showed it to be a widespread disease syndrome and

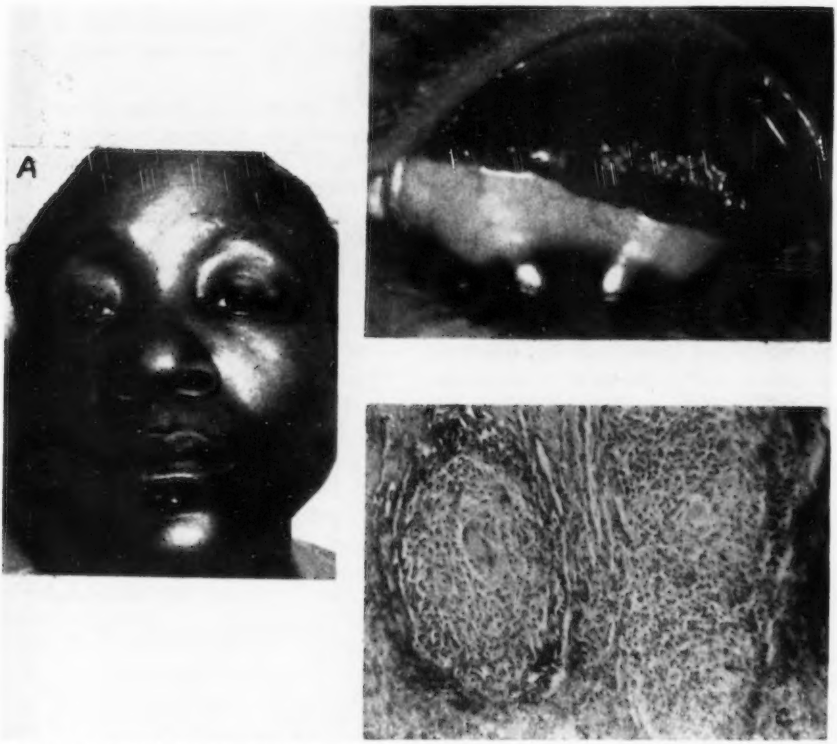

FIG. 14—A. Sarcoid simulating Mikulicz syndrome with enlarged lacrimal and parotid glands; B. Sarcoid simulating Parinaud's oculoglandular syndrome; C. "Naked" tubercles found in cases A and B showing giant cells and no caseation.

demonstrated the histologic relationship between the skin and bone lesions. In 1924 he related all the characteristics of sarcoid into one disease syndrome.

Friedman[19] stated, "When the lid margins are involved in a skin disease, sarcoid should be considered, for such lid involvement is rare in other diseases."

In 1941 Kveim described what he considered a specific skin test for sarcoidosis. When a heated salt suspension of lymph glands from active cases of sarcoid was injected intradermally, a small dark red hard papule appeared after several weeks; after 4 to 6 weeks a punch biopsy showed a picture similar to an active case. According to Sulzbach the Kveim test is not positive with other diseases. It does give a negative response with syphilis and lupus vulgaris. There is evidence, however, that killed tubercle bacilli intracutaneously, can produce a similar reaction. Nelson[30] studied 11 cases of sarcoidosis in Negroes. Seven out of the 11 were positive, but no healed or inactive case showed a positive Kveim. The patients who gave positive Kveim reactions also gave positive response to a suspension of normal human spleen.

Leider says the Kveim test is a valuable test but needs to be standardized. He feels it is evidence for tubercular an-

ergy. Lemmy reported similar responses with BCG vaccine.

Under cortisone treatment from three to five days, the skin lesion of Kveim will flatten with less induration. Regressive changes may occur after stopping the treatment with cortisone.

BRUCELLOSIS

This is a disease of manifold symptoms. The eye is one of the many sites of its manifestations. In its acute or chronic form brucellosis is second to no other disease in its ability to masquerade under innumerable guises. In 1939 Green published one of the earliest reports concerned exclusively with ocular manifestations in brucellosis. He reported four of his own cases and cited 28 others from the literature. They included iritis, optic neuritis, choroiditis, uveitis, palsies of the ocular muscles and retinitis.

Harris in a personal communication stated, "In my experience quite characteristic skin lesions appeared and disappeared along with other symptoms definitely attributable to brucellosis in 8.9 per cent of the first 247 cases tabulated."

They fell into 12 main groups, often more than one type was present in the same patient.

1. Macular, pink or red, scattered, itchy lesions usually of the forehead, temple, cheek, and occasionally the arms and trunk.

2. Maculopapular or papular eruption in small groups, anywhere in the body; often orange red in color and occasionally with small central vesicles.

3. Erysipelas-like lesions usually in extremities; painful, tender and accompanied by fever.

4. Multiple patches of dusky, cyanotic, tender, painful nodules resembling erythema nodosum.

5. Diffuse erythematous rash of entire body; high fever resembling scarlet fever.

6. Scaly, reddish brown, itching lesions, usually confined to arms and wrists, sometimes resembling psoriasis but lacking the typical scales.

7. Crusty, seropurulent lesions, usually on arms and legs, somewhat resembling impetigo and perhaps due to secondary infection.

8. Circinate and macular, pink, scaly lesions, closely resembling pityriasis rosea.

9. Papular, maculopapular and pustular contact dermatoses with distribution corresponding to exposed areas.

10. Ulcerative dermatitis.

11. Purpura patches.

12. Eczematous lesions and other unclassifiable skin conditions.

COCCIDIODES GRANULOMA OR COCCIDIOIDOMYCOSIS

This is a fungus disease first described by Wernicke in Argentina in 1892. The pathology is a granuloma resembling tuberculosis. The lesions may be cutaneous and pulmonary. One may get lesions in the meninges. If limited to a small area it simulates intracranial neoplasm. Papilledema may develop. Levitt reported vitreous opacities and Lovekin,[29] retinal exudates and hemorrhages in this disease. Skin tests with Coccidioides immitis antigen can give positive test with focal reaction in eye.

TUBERCULOSIS

Tuberculous lesions of the skin may be:

Localized

a. Primary tuberculous complex in the skin (Ghon tubercle)
b. Tuberculous verrucosa cutis
c. Tuberculous cutis orificialis

d. Scrofuloderma
e. Lupus vulgaris

Hematogenous

a. Acute miliary tuberculosis
b. Multiple disseminated tuberculosis of the skin
   1. Miliary lesions of the face
   2. Rosacea-like tuberculid of Lewandowsky
   3. Tuberculous cutis indurata (erythema induratum)
c. Tuberculid with hyperergic immunity
   1. Lichen scrofulosa
   2. Papulonecrotic tuberculid
d. Tuberculid with hyperergic immunity (sarcoid)

Ocular tuberculosis is not common in patients who have active tuberculous lesions in other foci or among those who are seen in institutions for the treatment of tuberculosis. On the other hand it is found commonly in those who show evidences of healed lesions. The nature of the eye manifestation depends principally on the virulence of the infection and secondly on the allergic and immunologic state of the patient. The Mantoux test determines the presence of the cutaneous sensitivity or the state of allergy in the patient.

Tubercle bacilli may be found in the conjunctiva as well as in aspirations of the pre-auricular gland.

Phylectenular conjunctivitis is frequently an allergic reaction to tuberculoprotein.

Tuberculosis of the cornea is due to (1) primary infection either ulcerative or infiltrative (this is rare) or (2) secondary infection either (a) by direct spread from the conjunctiva and limbus in the form of sclerosing keratitis from the sclera or by way of the ligamentum pectinatum from the uveal tract, (b) by inoculation of the cornea from the anterior chamber from tuberculous lesions of the iris, or (c) allergically, producing a superficial phlyctenular keratitis or an interstitial keratitis.

Uveal tuberculosis may be due to (a) an original infection; chronic proliferation without marked inflammation or (b) superimposed infection in an already sensitized individual allergic reaction with an acute inflammatory response.

In the iris, Koeppe nodules and Busacca floccule cells may be deposited from the aqueous on to the ectodermal pupillary border or on the mesodermal iris stroma. Superficial choroid shows little cellular response in the vitreous and aqueous and has localized scotomas. Deep marked vitreous haze with deposits on Descemet's and sector defects in the field are apparent. Primary tubercle in the retina is rare, but there may be evidence of tubercular periphlebitis. The optic nerve is rarely involved and inflammatory process reaches here by spread from the lesion in the eye, orbit or brain or metastatically through the blood stream.

SYPHILIS

Syphilids are the cutaneous manifestations of syphilitic infection.

In early syphilis the lesions are macular, maculopapular, papular, papulopustular or pustular.

In late syphilis the lesions are nodular, squamous or gummatous.

In the eye the conjunctiva may be the site of a primary sore or chancre.

From the ages of 2 to 8 interstitial keratitis is the usual ocular complication. After 8 years of age interstitial keratitis, eighth nerve deafness, neurosyphilis and optic atrophy may occur.

Of 532 patients with interstitial keratitis 8 per cent had chorioretinitis, 8 per cent had neurosyphilis, 40 per cent had dental stigmas, 35 per cent had bone and joint lesions and 10 per cent had labyrinthine diseases.

When one eye is involved in interstitial keratitis, the disease becomes bilateral in 1 month in 42 per cent and within 10 years in 79 per cent of the cases.

From ages 5 to 25 is the usual range in which interstitial keratitis may appear.

About 2 per cent of all eye diseases are caused by syphilis. Lewis observed that in the syphilitic children of infected women, 50 per cent to 75 per cent become afflicted with eye disease.

Berens and Goldberg found the percentage of positive Wassermann reactions in interstitial keratitis to be 53.8 per cent; keratouveitis, 50 per cent; Argyll Robertson pupil, 41.7 per cent; optic neuritis and papillitis, 20 per cent; iritis and iridocyclitis 15.4 per cent; uveitis 14.2 per cent and choroiditis 12.4 per cent.

Extraocular muscle paralyses and ophthalmoplegia interna may occur during the course of syphilis. In the treatment of interstitial keratitis fever therapy is excellent; metal chemotherapy and penicillin are also indicated. Iritis and even gumma of the iris may occur. The most common and characteristic form of choroiditis in syphilis was described by Forster. It is found in the secondary stage of syphilis although it may occur late in the disease. A ring scotoma is not uncommon. Retinitis and optic neuritis occur.

Freeble and Donohue in a study of the cause of blindness in Ohio, found syphilis to be first in the ten leading causes: 7.9 per cent were due to this factor. Of the pathologic lesions in luetic blindness, optic atrophy is by far the greatest primary factor (67.7 per cent). The second cause is interstitial keratitis (10.4 per cent). As the average time existing between the initial injection and loss of sight is 17 years, the routine of taking frequent field studies in all luetic cases at regular intervals before optic nerve involvement may direct attention to more intensive therapy when it can be of value.

PEMPHIGUS

This disease not infrequently attacks the conjunctiva, leading to progressive cicatrization and shrinkage of the membrane (fig. 15 A, B and C). The etiology has not been definitely established but a viral causative agent is seriously entertained. German workers have claimed elementary bodies in bullous fluid and conjunctival scrapings, and the production of transmissible and filtrable lesions in mice, a finding confirmed by Grace and Suskind. The present writer has been unsuccessful in such demonstrations. Eighty per cent of cases have shown a streptococcus in the conjunctiva even though this usually is found in only 3 per cent of cases. Apparently the habitat produced is conducive to the development of the organism. One should be careful in the beginning of the disease that lashes should not rub against the cornea as with the production of a corneal ulcer the condition progresses on to complete clouding over of the cornea. Pemphigus vegetans may produce lid adhesions with no conjunctival involvement.

Cortisone in systemic pemphigus can be dramatically effective while being given, clearing up the whole body in a week. However, this is not constantly true, nor is it permanent.

ERYTHEMA NODOSUM

The skin lesions are frequently painful, nodular and erythematous. They most commonly involve the shins but also at times the upper extremities. In most instances evidence of systemic involvement, such as fever, arthritis or arthralgia exists. For many years these skin lesions were regarded as manifestations of either tuberculosis or rheumatic

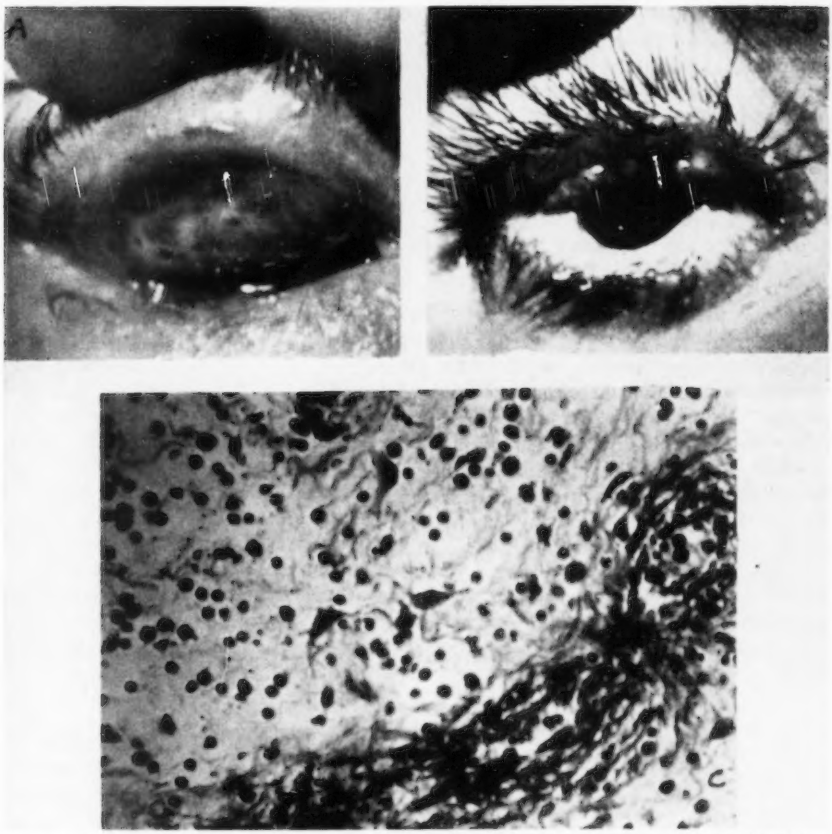

FIG. 15.—A. Scarring as seen under upper lid in essential shrinkage of the conjunctiva; B. Pemphigus vegetans with granulation at edge of upper lid; C. Subconjunctival fibrosis as seen histologically in ocular pemphigus.

fever. Recently, however, a large percentage of cases have been found to be associated with infection due to the hemolytic streptococcus, meningococcus, coccidioidomycosis, as well as after drugs.

The extraocular muscles may be involved, recurrently as well as successively. The conjunctiva may show chemosis with vesicles, scleritis as well as episcleritis has been reported.

VIRAL DISEASES

Measles

An acute catarrhal conjunctivitis occurs almost as a rule early in the course of measles and typical Koplik spots may appear in the caruncle before the rash appears on the skin. If we examine the cases that have extensive lacrimation and photophobia we will find the cornea studded with punctate lesions which disappear after the rash fades, leaving no scars or effect on the refraction. It is at

this time, however, that one has to be careful not to introduce secondary infections which produce the ulcers and scarring that does cause visual loss after measles. Iritis, panophthalmitis and optic neuritis have been reported. This disease is caused by a virus. Immune globulin is of value in the contact stage, and even if given from 5 to 9 days in the incubation period the disease may be favorably modified.

Herpes Zoster

The virus of this disease frequently affects the first division of the fifth nerve, usually the frontal, and not infrequently the lacrimal and nasociliary. When the latter is involved the cornea becomes affected reducing vision by vascularization and scarring. Iridocyclitis with or without secondary glaucoma may occur, when the cornea is involved. Scleritis and paralysis of the third, fourth, sixth and seventh nerves have been reported. Optic neuritis may occur.

Secondary zoster, according to Duke-Elder, is caused by the same virus with lues, tuberculosis, meningitis, tabes, skull fractures, drug intoxications, leukemia and spinal cord tumors acting as exciting factors.

Most workers believe that a close relationship exists between the virus of varicella and herpes zoster. Some believe varicella is the dermatropic form and zoster the neurotropic form of the same virus. Varicella may affect the cornea in two types, superficial and deep.[18] The latter occurs 10 to 21 days after the eruption. This is rare. Disciform keratitis, if it develops, may last 5 to 6 months.

By transplanting Thiersch grafts[20] in the chorioallantoic membrane of a chick takes can be had on the transplanted skin. The herpes zoster virus does not grow otherwise on any other experimental animal or media.[26] Acidophilic intranuclear inclusion bodies occur in the epithelial cells particularly at the base of the vesicles. Cases have been reported in which the cornea has been affected before the skin lesion appeared.

Gundersen reported transfusions of blood from patients convalescing from herpes zoster to be successful in reducing the frequency and severity of ocular complications if given early in the disease.

Aureomycin, chloromycetin and terramycin have all proved of some value in some cases, but not consistently.

Variola

In variola the eyelids are usually involved in a cutaneous eruption and a catarrhal conjunctivitis develops. The cornea may be involved with pustules, especially if secondary bacterial infection ensues. According to Duke-Elder, leukomas from hypopyon ulcers of variola produced many cases of blindness in the prevaccination days. Involvement of the iris, choroid and optic nerve have been reported.

Vaccinia

The lids are not infrequently involved from contact with vaccination. The conjunctiva and cornea may become involved primarily or secondarily to lid infection. The lid margins and conjunctiva may heal without sequelae, but the corneal involvement may produce a loss of vision. Ocular paralysis and postvaccinial retinitis and encephalitis have been reported. Optic neuritis and choroiditis have been reported as a rarity. Variola and vaccinia are caused by a single virus, modified by the passage through the calf, accompanied by loss of virulence from man, but retaining the ability to produce effective immunity. The immunity may appear as early as the sixth day and becomes complete in two to fourteen days. The papule is not evidence of a take. A vesicle must be present. The cornea does not participate

in the immunity in all cases. Inoculation of the rabbit's cornea may cause a severe keratitis to develop. Here one finds Guarnieri bodies.

Lymphogranuloma Venereum

In 1913 Durard, Nicolas and Farre published the first comprehensive description of lymphogranuloma venereum. In 1925 Frei described the intradermal test (antigen prepared by sterilizing pus from unruptured buboes of lymphogranuloma venereum; persons with the disease get a specific inflammatory reaction).

In 1930 Hellerstrom and Wassen demonstrated the causal agent as a filtrable virus.

This is a disease of the lymphatic system. Elephantiasis of the external genitalia may occur with chronic ulceration of the rectum and anus leading to fistula and rectal strictures. The eye may present a picture of Parinaud's oculoglandular syndrome. The conjunctival lesion occurs as a primary manifestation of the disease. Neuritis, uveitis, keratitis and episcleritis may occur.

The virus filters through the Berkefeld filter (size is between 100 to 140 millimicrons). It has been grown in tissue culture and on the chorioallantoic membrane of a chick. Elementary bodies have been reported by Miyagawa. False positive Frei tests are almost unknown. The virus is sensitive to sulfonamides. A number of fundus lesions have been reported in association with genitourinary lymphogranuloma venereum. Kitagawa and Espiladora and Coutts, reported peripapillary edema and tortuosity of the retinal vessels and Kornblueth reported a case with retinal hemorrhage.

Meger and Reber noted corneal ulceration in a case with systemic disease. Sclerokeratitis has also been reported. Sonck reported "in view of the marked cutaneous allergy evidenced by the virus in infected subjects, phylctenulosis, recurrent iritis and episcleritis is not surprising. The patients had proctitis or rectal strictures."

Erythema nodosum was also present. The virus was isolated from conjunctivitis and presumed to be present in other lesions. Thygeson has concluded that "cases of human uveitis will eventually be shown to have been caused by this virus." Miyagawanella lymphogranulomatosis can be grown in tissue culture, but from human diseases, intracerebral inoculations of mice or injection into the yolk sac is the best corroborative method. In addition to sulfonamides, aureomycin, chloromycetin and terramycin are all active against it.

MONOCYTIC LEUKEMIA

Three cases of monocytic leukemia were observed. In each case the fundus showed preretinal hemorrhages (fig. 16A) associated with a low platelet count. In one case hemorrhage from the nose and ears occurred as well as in the brain, the latter producing a papilledema. At autopsy the posterior segments of the globe were obtained and showed the preretinal hemorrhages as well as the vessels filled with monocytes (fig. 16B and C). The possibility of monocytic leukemia should be borne in mind with preretinal hemorrhages in a case of leukemia.

In the skin an eczema-like eruption may be the first symptom to which the patient's attention is called (leukemia cutis). Occasionally small tumors occur in the skin. In some instances there is diffuse lymphatic hypertrophy with the formation in the lower part of the corium or subcutaneously of discrete or chainlike pea to cherry-sized or larger lesions. Flattened nodules occasionally resembling mycosis fungoides occur.

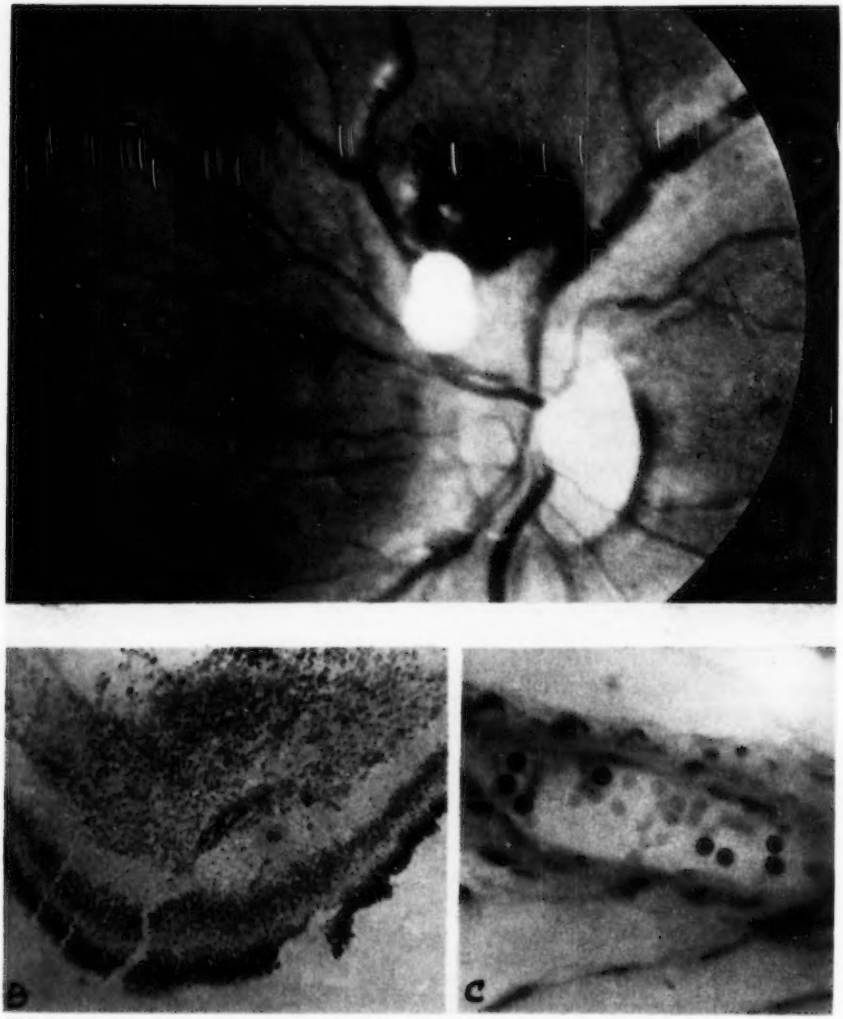

FIG. 16.—A. Preretinal hemorrhage in monocytic leukemia; B. Same hemorrhage as seen histologically; C. Monocytes in choroidal artery.

PRIMARY XANTHOMATOSIS (ESSENTIAL HYPERCHOLESTEROLEMIA)[39]

Xanthelasma of the eyelids appear commonly on the medial corners and on points on the lid subject to pressure. They are yellowish orange plaques, 1 to 30 mm. in size and level with the skin or slightly elevated. They usually appear around the age of 30 but, sometimes in the 20's. High normal or elevated cholesterol content of the blood is found (fig. 17A, B and C).

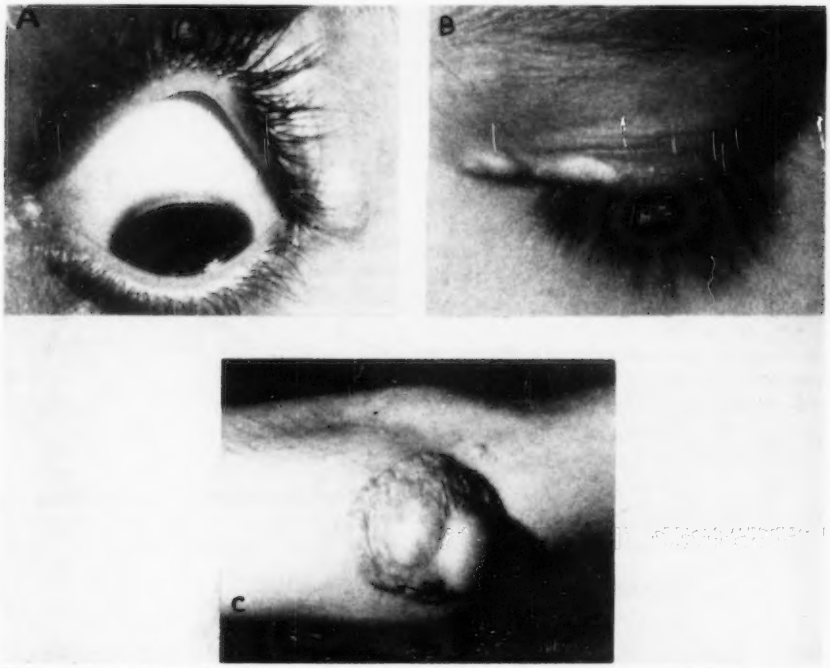

FIG. 17—Essential hypercholesterolemia: A. Arcus juvenilis; B. Xanthoma palpebrarum; C. Xanthoma tuberosum.

One should differentiate between this type and the pinhead size of disseminated xanthoma. The first type occurs simultaneously with xanthoma tuberosum of the elbows and tendons. The second type occurs with xanthoma on neck, axilla, heads of elbows and knees. The cholesterol of the blood is normal. If treated with caustic they will recur. Diet is of no value.

The hypercholesteric form may occur at any age and may be familial. Although the skin lesions are the commonest manifestations, these are often associated with changes in internal organs. Xanthomatosis of heart and vessels occurs and patients may die from cardiac failure. Treatment is dietetic but this is disappointing; splenectomy is of no value.

Genuine essential hypercholesterolemia is due to a dominant gene. If one parent has hypercholesterolemia about half of the offspring will inherit the disease, boys and girls equally often. The disease is not connected particularly with a definite type of constitution. Half of the individuals with hypercholesterolemia have a latent xanthomatosis presenting no other sign than hypercholesterolemia while the other half suffer from manifest xanthomatosis. The serum cholesterol level is probably high from childhood. Xanthomatosis manifest extrapalpebrally with normal serum cholesterol values has never been observed.

Of patients with generalized xanthomatosis 50 per cent present palpebral xanthelasma while in nearly all of these, xanthomas in the tendon are present. About half of the patients with xanthomatosis present arcus senilis as well.

(This lesion was present in only 4 of 21 cases with latent xanthomatosis.) Angina pectoris was observed in 16 of 52 patients with hypercholesterolemia.

If xanthomas have not appeared before 40 they are hardly likely to appear. The histopathology is similar to that in xanthoma in general, and includes all stages from typical xanthoma to fibrotic changes. As a rule relatively few Touton giant cells are present. There is an increase in the lattice fibers lying between and surrounding the xanthoma cells. Twenty-five per cent of cases of xanthoma tuberosum and disseminate xanthoma have xanthoma palpebrarum suggesting that xanthoma palpebrarum is an accompaniment of systemic disease.

Polaro found that all cases of xanthoma tuberosum had an increase in cholesterol and total lipoids in blood, the cholesterol esters predominating even in cases in which a moderate degree of hepatic damage was present. In disseminated xanthoma no increase in lipoids is seen. (Diabetes insipidus is high in the disseminated type of xanthoma.) In treatment give diet poor in cholesterol and fat and give thyroid extract. Serum lipoid may fall on such a diet but no effect on angina or eyelids occurs.

Two patients given thyroid extract showed diminution in nodes but no lowering of serum lipoids. In one case that developed hyperthyroidism xanthoma of the palms disappeared and the serum cholesterol changed to normal.

LIPOID PROTEINOSIS[38]

This condition is rare. It begins in infancy and shows a definite familial tendency (consanguinity present). The skin shows nodules, hyperkeratotic, verrucous and sclerosing types of lesions. The face, extremities and mucous membranes including the larynx, may be involved. Hoarseness is a prominent symptom. The tongue is wooden-like in consistency and bound down. The mucosa of the lip and buccal cavity show yellowish white plaques and firm nodules. Similar changes in epiglottis and the vocal cords occur. The eyelids may be involved. Beadlike whitish papules may be present. The face becomes scarred. The hair may become thin. There is diabetes in some cases. The disease is fatal. One finds an increase in phosphatids (lecithin) in blood plasma. Extracellular deposits of lipoids in the tissue without foam cells are found. The vessel wall is surrounded by lipoid substance. Insulin therapy may be of some value.

SUMMARY

The appearance of lesions in both the skin and eye as manifestations of general disease makes it important to be familiar with the expressions in both systems for the better recognition and handling of systemic disorders.

REFERENCES

1. Adamantiades, B.: Sur un cas d'iritis a hypopion récidivant, Ann. d'ocul., 168:271-278 (April) 1931.
2. Anderson, J. A., Bolin, Vern, Sutow, W. W., and Kitto, William: Virus as possible etiologic agent of erythema multiforme exudativum, bullous type, Arch. Dermat. & Syph., 59:251-262 (March) 1949.
3. Baggenstoss, Archie H., Shick, Richard M., and Polley, Howard F.: The effect of cortisone on the lesions of periarteritis nodosa, Am. J. Path., 27:537-560 (July-Aug.) 1951.
4. Behcet, Hulusi: Über rezidivierende, aphthöse, durch ein Virus verursachte Geschwüre am Mund, am Auge und an den Genitalen, Dermat. Wchnschr., 36:1152-1157 (Sept. 4) 1937.
5. Berliner, Milton L., and Breinin, Goodwin M.: Angioma of the choroid: a clinicopathologic report of two cases of partial and complete encephalotrigeminal angiomatosis, Arch. Ophth., 46:39-48 (July) 1951.

6. Blank, Harvey, Burgoon, Carroll F., Baldridge, G. Douglas, McCarthy, Philip L., and Urbach, Frederich: Cytologic smears in diagnosis of herpes simplex, herpes zoster, and varicella, J.A.M.A., 146:1410-1412 (Aug. 11) 1951.

7. Bluthe, L.: Zur Kenntnis des recidivierenden Hypopyons, in Aug. dissert. Heidelberg, D. Strauss, 1908.

8. Bourneville: Contribution à l'étude de l'idiote, Arch. de neurol, Paris, 1:69-91, 1880.

9. Bruce, Gordon M.: Retinitis in dermatomyositis, Tr. Am. Ophth. Soc., 36:282-297, 1938.

10. Carrasquille, H. F.: Uveitis with poliosis, vitiligo, alopecia and dysacousia (Vogt-Koyanagi syndrome), Arch. Ophth., 28: 385-414 (Sept.) 1942.

11. Cavara, Vittoriano: Uber ein besonderes Syndrom, gekennzeichnet durch redizidivierende Hypopyoniritis, verbunden mit Geschwüren des Mundes und der Geschlechtsteile und mit Hautausschlägen, Klin. Monatsbl. f. Augenh., 104:629-644 (Jan.-June) 1940.

12. Das-Gupta, B. K.: Ariboflavinosis, with a case report on parenchymatous keratitis following riboflavin deficiency, Am. J. Ophth., 32:1389-1393 (Oct.) 1949.

13. Dascalopoulos, N.: Sur deux cas d'uvéite récidivante, Ann. d'ocul., 169:387-393 (May) 1932.

14. DeVries, S.: Retinopathy in dermatomyositis, Arch. Ophth., 46:432-435 (Oct.) 1951.

15. Fiessinger, N., Wolff, M., and Thévenard, A.: Ectodermose érosive pluri-orificielle, Bull. et mém. Soc. méd. d. hóp. de Paris, 47:446-449, 1923.

16. Fiessinger, N., and Rendu, R.: Sur un syndrome caractérisé pas l'inflammation simultanée de toutes les muqueuses externes coexistant avec une éruption vésicleuse des quarte membres, non douloureuse et non récidivante, Paris Med., 23:54-58, 1917.

17. Franceschetti, A., and Babel, J.: La chorio-retinite en "taches de bougie," manifestation de la maladie de Besnier-Boeck, Ophthalmologica, 118:701-710, 1949.

18. Frandsen, Emil: Chickenpox in the cornea, Acta ophth., 28:113-120, 1950.

19. Friedman, Harry S.: Boeck's sarcoid: a review and a report of a case demonstrating multiple iris nodules, acute secondary glaucoma, and keratoplasty, Am. J. Ophth., 34:1126-1136 (Aug.) 1951.

20. Goodpasture, Ernest W., and Anderson, Katherine: Infection of human skin, grafted on the chorioallantois of chick embryos, with the virus of herpes zoster, Am. J. Path., 20:447-456 (May) 1944.

21. Hargraves, M. M.: Production in vitro of the L.E. cell phenomenon: use of normal bone marrow element and blood plasma from patient with acute disseminated lupus erythematosus, Proc. Staff Meet., Mayo Clin., 24:234-237 (Apr. 27) 1949.

22. Hargraves, M. M., Richmond, Helen, and Morton, Robert: Presentation of two bone marrow elements, the "tart" cell and the "L.E." cell, Proc. Staff Meet., Mayo Clin., 23:25-28 (Jan. 21) 1948.

23. Haserick, John R., and Bortz, Donald W.: Normal bone marrow inclusion phenomena induced by lupus erythematosus plasma, J. Invest. Dermat., 13:47-49 (Aug.) 1949.

24. van der Hoeve, J.: Augengeschwülste bei der tuberösen Hirnsklerose (Bourneville) und verwandten Krankheiten, Arch. f. Ophth., 111:1-16, 1923.

25. Koyanagi, Y.: Dysakusis, Alopecia und Poliosis bei schwerer Uveitis nicht traumatischen Ursprungs, Klin. Monatsbl. f. Augenh., 82:194-211 (Jan.-June) 1929.

26. Kundratitz, Karl: Experimentelle Übertragungen von Herpes zoster auf Menschen und die Beziehungen von Herpes zoster zu Varicellen, Ztschr. f. Kinderh., 39:379-387, 1925.

27. Levitt, Jesse M.: Boeck's sarcoid with ocular localization: survey of the literature and report of a case, Arch. Ophth., 26: 358-388 (Sept.) 1941.

28. Lisman, Jack V.: Dermatomyositis with retinopathy: report of a case, Arch. Ophth., 37:155-159 (Feb.) 1947.

29. Lovekin, Louise Goux: Coccidioidomycosis: report of a case with intraocular involvement, Am. J. Ophth., 34:621-623 (April) 1951.

30. Nelson, Carl T.: Observations on the Kveim reaction in sarcoidosis of the American Negro, J. Invest. Dermat., 10:15-26 (Jan.) 1948.

31. Pastor, Bernard H., Sloane, Norman G., and Goldburgh, Harold L.: Disseminated lupus erythematosus in the male: report of five cases, New England J. Med., 244:81-84 (Jan. 18) 1951.

32. Rendu, R.: Sur un syndrome caracterisé pas l'inflammation simultanée de toutes les muqueuses externes (conjonctivale, nasale, linguale, buccopharyngée, anale et balanopréputiale) coexistant avec une éruption varicelliforme puis purpurique des quatres membres, Rev. gén. de clin. et de thérap., Par., 30:351, 1916.

33. Rich, Arnold R.: The role of hypersensitivity in the pathogenesis of rheumatic fever and periarteritis nodosa, Proc. Inst. Med. Chicago, 15:270-280 (March 15) 1945.
34. Robinson, Harry M., Jr.,: The ocular-mucous membrane syndrome, M. Clin. North America, 315-331 (March) 1951.
35. Stallard, H. B.: A case of intra-ocular neuroma (von Recklinghausen disease) of the left optic nerve head, Brit. J. Ophth., 22:11-18 (Jan.) 1938.
36. Stevens, A. M., and Johnson, F. C.: A new eruptive fever associated with stomatitis and ophthalmia; report of two cases in children, Am. J. Dis. Child., 24:526-533 (Dec.) 1922.
37. Sturge, W. A.: A case of partial epilepsy, apparently due to a lesion of one of the vaso-motor centres of the brain, Tr. Clin. Soc. London, 12:162-167, 1879.
38. Sulsberger, Marion B.: A case of lipoidosis cutis et mucosae—so-called "lipoid proteinosis" Urbach-Wiethe, Laryngoscope, 52:286-297 (April) 1942.
39. Thannhauser, Siegfried J.: Oxford Medicine (Christian). Vol. IV, Part 2, 214. Lipidoses, Diseases of Cellular Lipid Metabolism.
40. Tzanck, A., and Aron-Brunetiere, R.: Le "cyto diagnostic immediat" des dermatoses bulleuses, Gaz. méd. port., 2:667-675, 1949.
41. Vogt, Alfred; Frühzeitiges Ergrauen der Zilien und Bemerkungen über den sogenannten plötzlichen Eintritt dieser Veränderung, Klin. Monatsbl. f. Augenh., 44: 228-242 (Jan.-June) 1906.
42. Wagener, H. P.: Retinal lesions in acute disseminate lupus erythematosus, Am. J. M. Sc., 211:240-224 (Feb.) 1946.
43. Weber, F. Parkes: A note on the association of extensive haemangiomatous naevus of the skin with cerebral (meningeal) haemangioma, especially cases of facial vascular naevus with contralateral hemiplegia, Proc. Roy. Soc. Med. 22:431-442, 1928-1929.

Symposium: Ocular Manifestations of Dermatologic Diseases

DERMATOLOGIC RELATIONSHIPS IN OPHTHALMOLOGY

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BY INVITATION

BOTH localized and systemic disease often show combined cutaneous and ocular manifestations. Sometimes there is a true connection, such as in the development of cataract in atopic dermatitis or of keratitis in rosacea. In other instances, the association is so infrequent that it suggests a coincidental basis.

There are many reasons, however, for the combination of cutaneous and ocular involvement. The skin of the eyelid differs in some respects from that of most of the body. It is prone to the extension of neighboring dermatoses. The thinness of the protective stratum corneum of the eyelid favors irritation from many agents, as exemplified in fingernail polish dermatitis, which always affects the eyelids while respecting the skin of the fingers. The dermis and subcutaneous tissue of the lid are loose and present a poor barrier to infection. This looseness also accounts for the extensive edema which often involves the lid. The eyelid also is a common site of development of vesicles which may occur by different mechanisms, either by a weakening of the cohesive substances at the dermal-epidermal junction, or by allergic intracellular and extracellular edema or by ballooning of epidermal cells by viral inclusion bodies.

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All these factors point to the caution which should be used in the treatment of disease affecting the lids. "First, do no harm" certainly applies in these conditions. For the local treatment of pruritus and edema, cold saline or boric acid packs will provide more relief than the so-called soothing ointments, which too often become sensitizers.

In contrast to the deficiencies of the lid, some of its structural peculiarities do afford protection. The thin stratum corneum offers very little of the keratin necessary for the survival of superficial dermatophytes, which accounts for the rarity of tinea of the lids. In acne vulgaris, testosterone stimulates overactivity of the sebaceous glands of the face, with secondary inflammation. It might be that a lack of response to that stimulus accounts for the noninvolvement of the glands of the lids. In the deeper structures, we also find reason for common involvement. Congenital malformation and errors of metabolism have a predilection for neuroectodermal tissues, as in phacomatosis.

Vascular and collagen changes will be reflected both in the fundi and the skin, as in lupus erythematosus. Degeneration of the elastic fibers also will affect both in pseudoxanthoma elasticum.

In dermatology, as in all other branches of medicine, therapy has been considerably improved by the antihistamines, antibiotics and corticotrophic hormones, and although these drugs

have been used somewhat indiscriminately, we may infer much of the etiology and pathogenesis of some conditions from their response to such drugs.

ALLERGIC, TOXIC AND HYPERSENSITIVE STATES

Among generalized diseases, the allergic, toxic and hypersensitive states are foremost in importance because of their frequency and the problems of management they present.

Atopic Dermatitis

Although most cases of atopic dermatitis occur in childhood and tend to clear in early adulthood, some will persist despite treatment, and in many of these cases the patients will develop atopic cataracts. The cutaneous lesions go through the stages of exudation, desquamation, excoriation and lichenification. Severe bouts of pruritus will bring intense rubbing and injury to the eye structures.

The management of these cases is difficult. In childhood the original sensitizing agent occasionally can be isolated, but with the passage of time multiple sensitivities will develop. A secondary bacterial element also enters the picture. Treatment consists of the avoidance of irritating substances, the application of soothing medication in the form of saline or boric acid packs during the acute stages, the use of antihistamines, particularly those with sedative side effects, for the relief of pruritus, and of antibiotics to counteract secondary invaders. Fractional roentgen therapy affords temporary relief. Most dermatologists believe that its use has no role in the production of atopic cataracts. ACTH and cortisone can effect dramatic remissions, but too often they do so at the price of severe relapses. Their use, however, is occasionally justified, particularly prior to surgical intervention.

Contact Dermatitis

Contact dermatitis, although a localized sensitivity, is mentioned here as a frequent complication of the above-mentioned and other dermatoses. Often due to the indiscriminate use of antipruritic or antibacterial agents (fig. 1, color plate), it rarely spares the lids.

LEGENDS FOR COLOR PLATES

FIG. 1—Contact dermatitis.

FIG. 2—Erythema multiforme.

FIG. 3—Discoid lupus erythematosus.

FIG. 4—Disseminated lupus erythematosus.

FIG. 5—Dermatomyositis.

FIG. 6—Lupus vulgaris.

FIG. 7—Xanthelasma.

FIG. 8—Pseudoxanthoma elasticum.

FIG. 9—Ariboflavinosis.

FIG. 10—Rosacea.

FIG. 11—Pemphigus vulgaris.

FIG. 12—Seborrheic dermatitis.

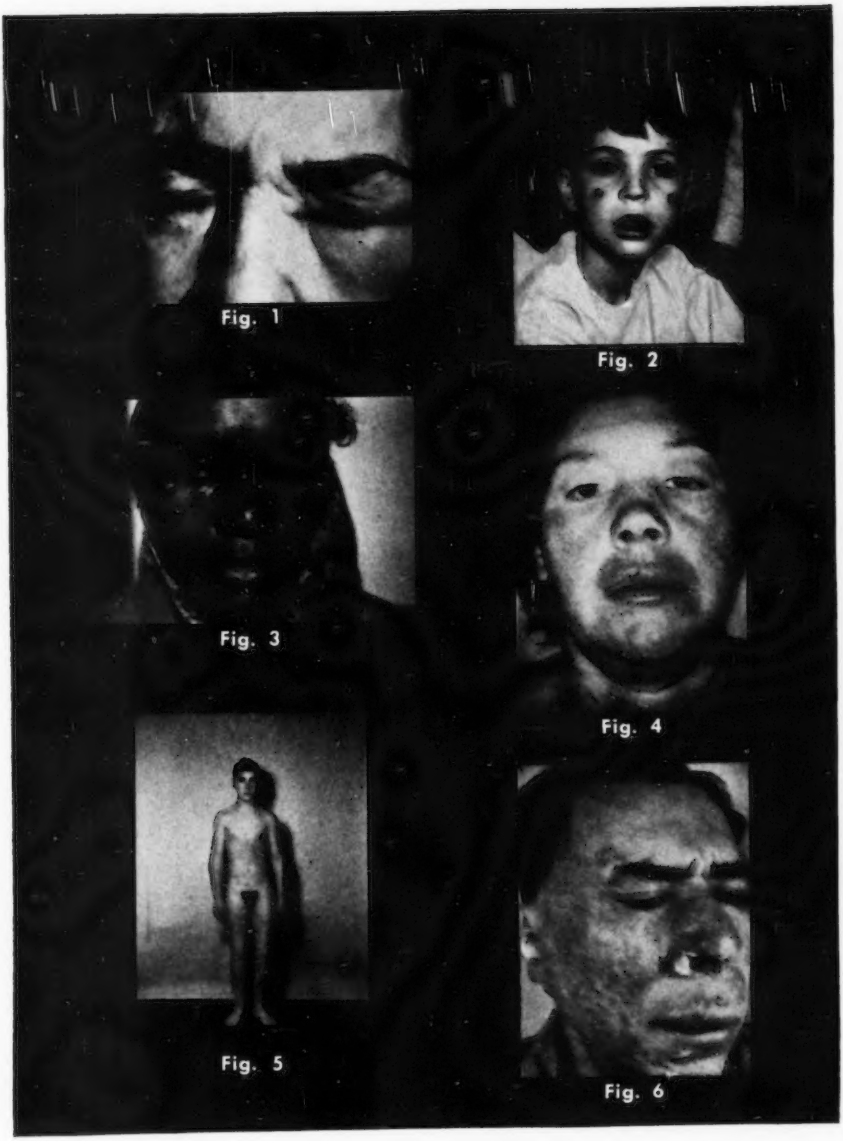

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

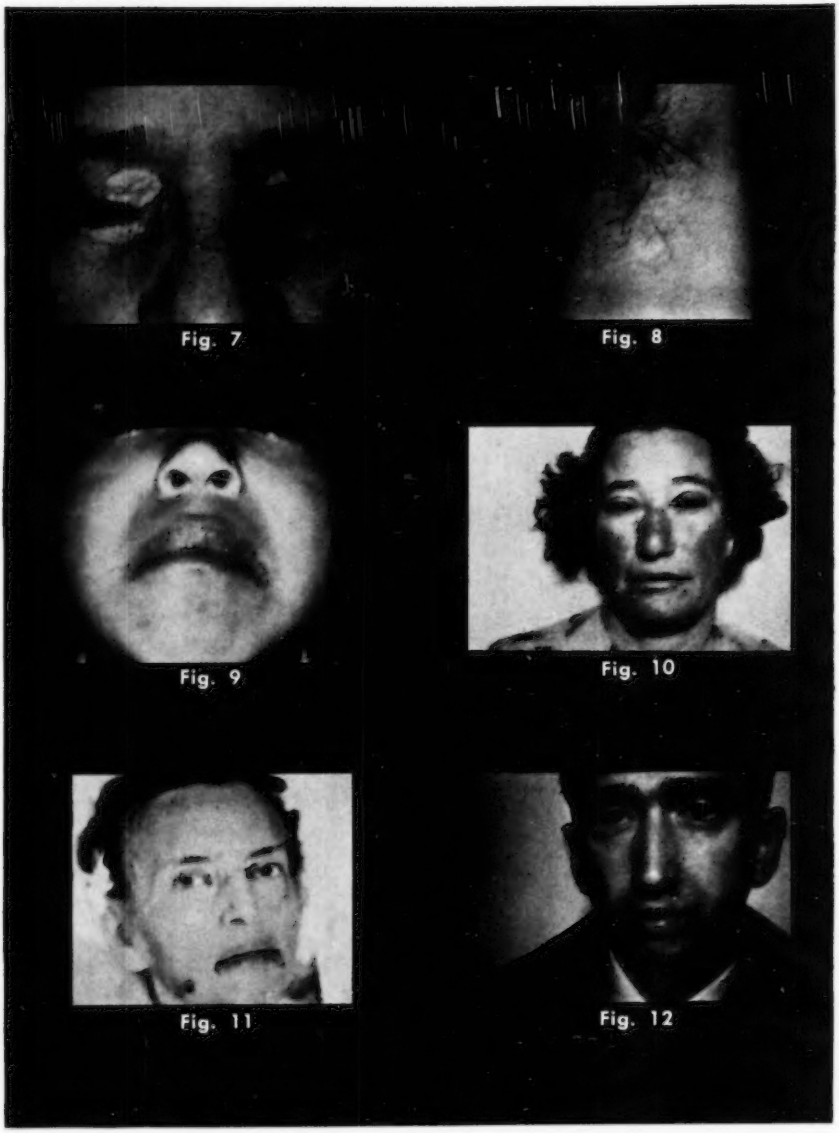

Fig. 7

Fig. 8

Fig. 9

Fig. 10

Fig. 11

Fig. 12

Urticaria and Angioneurotic Edema

Drugs, as well as foods, physical agents and, possibly, emotions, will often produce severe acute vascular hyperpermeability, as occurs in urticaria and angioneurotic edema. Most patients respond to ephedrine and adrenalin or to the antihistamines, although occasionally it is necessary to resort to the use of ACTH or cortisone. Even the use of these drugs will be followed by relapses at times, as in some cases of urticaria and angioneurotic edema due to penicillin or those where diligent search fails to demonstrate the offending agent.

Erythema Multiforme

The ocular mucous membrane syndrome of erythema multiforme is characterized by widespread vesiculobullous lesions, together with toxic manifestations (fig. 2, color plate). Supportive therapy is of principal value. When combined with the use of antibiotics and the corticotropic hormones, it has considerably improved the prognosis in this condition.

Erythema Nodosum

Erythema nodosum (fig. 1) represents a milder form of hypersensitivity. It occurs chiefly on the lower portion of the leg and is usually secondary to some chronic infectious process, such as tuberculosis or coccidioidomycosis, or in reaction to drugs, such as the sulfonamides. A self-limited disease, its course is reportedly shortened by ACTH, although the steroid hormones should be used only when the possibility of an underlying infectious process has been eliminated.

Lupus Erythematosus

Lupus erythematosus occurs in two very different forms whose relationship is not clear. Of localized discoid lupus erythematosus (fig. 3, color plate), we shall mention only that the patient should avoid exposure to sunshine and the use of toxic drugs, as these factors may cause dissemination of the disease.

FIG. 1—Erythema nodosum.

The systemic form, either acute or subacute, probably represents a type of hypersensitivity, as evidenced by Rich's experiments on animals, by laboratory and autopsy findings, by the vascular abnormalities present, and by therapeutic responses. The skin lesions of the systemic form (fig. 4, color plate), are more edematous, erythematous and angry looking than those found in the discoid form. Almost every organ can be affected, and in practically all cases there is an elevation of the sedimentation rate, the presence of leukopenia and neutropenia, and a reversal of the albumin-globulin ratio. In doubtful cases, the diagnosis will be facilitated by the finding of the "L. E." cell in specimens of bone marrow or peripheral blood, or even in induced skin blisters. The prognosis is somewhat improved by the use

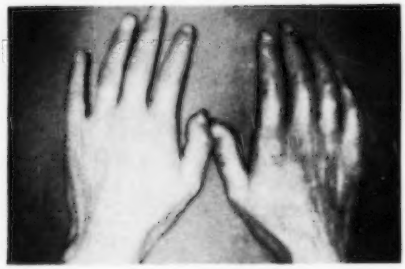

FIG. 2.—Scleroderma.

of ACTH and cortisone, which, in addition to supportive therapy, will at least produce remissions justifying their use in a disease which in the acute form results in death in 80 per cent of patients.

Dermatomyositis

In dermatomyositis (fig. 5, color plate), the cutaneous manifestations are often similar to those of systemic lupus erythematosus, but muscular involvement, lack of severe systemic manifestations, and absence of the "L. E." cell differentiate this condition from lupus erythematosus. Also, the prognosis is much better in this condition.

Scleroderma

Scleroderma is included by many authors in the conditions loosely grouped together under the questionable term "collagen diseases." It is characterized by taut atrophy of the skin (fig. 2). Remissions have followed the use of ACTH and cortisone.

Periarteritis Nodosa

This disease also has skin manifestations, which are of a nonspecific nature and which range from macules to plaques.

Rheumatoid Arthritis

This condition is occasionally accompanied by firm subcutaneous nodules with a characteristic histopathologic picture.

INFECTIOUS PROCESSES

Deep Granulomas

Tuberculosis. Tuberculosis of the skin is rarely seen in the United States. Lupus vulgaris (fig. 6, color plate), with its apple-jelly nodules, is the commoner form seen about the face, although inoculation tuberculosis verrucosa cutis and allergic tuberculids are occasionally seen in that location. Response to treatment with vitamin D_2, streptomycin and para-aminosalicylic acid, alone or in combination, is slow but satisfactory.

Sarcoidosis. In sarcoidosis the lesions vary from superficial to subcutaneous nodules. The etiology of this disease remains undetermined, although a close relationship to tuberculosis is suspected. The prospect for recovery is rather good, although no satisfactory treatment has been found so far. There have been several reports of good results from the use of ACTH and cortisone for the treatment of sarcoidosis, but one might question the advisability of using these drugs in a disease where they might cause a widespread dissemination of an unrecognized underlying tuberculosis.

Syphilis. The cutaneous manifestations of syphilis are as diversified as its visceral complications. From the primary chancre to the late gumma, any type of lesion can be seen. These cutaneous lesions, however, have become quite rare, due to the settling of the postwar population, to the effectiveness of antivenereal campaigns, and even more to the ever-increasing use of the antibiotics for a multitude of conditions, with resultant masking of early syphilitic lesions. Penicillin remains the treatment of choice.

Leprosy. Leprosy, either of the tuberculoid or of the lepromatous type (fig. 3), is occasionally seen on the Pacific Coast or along the Gulf of Mexico. The prognosis is good in the allergic tuber-

FIG. 3—Leprosy

culoid type with lepromatous reaction, but lepromatous leprosy requires many years of treatment with the sulfones, although the destructive nodules involute fairly well under therapy. During the early part of treatment, these patients will often have episodes of fever, with development of erythema nodosum.

Coccidioidomycosis, sporotrichosis, and blastomycosis. These conditions, in addition to systemic invasion, produce lesions of both cutaneous and ocular structures. This is in contrast to the rarity of periocular involvement by the superficial dermatophytes.

Herpes Simplex

Although one may think of herpes simplex as a benign localized disease, ophthalmologists are aware of its seriousness. We also see, at times, the fulminating form of widespread dissemination of the virus over an eczematous skin, giving rise to the entity known as Kaposi's varicelliform eruption. In difficult cases the diagnosis is facilitated by making a smear of the scrapings of the base of a vesicle. The smear will show multinucleated balloon cells in lesions due to herpes simplex, herpes zoster, and varicella. The treatment of herpes simplex infection remains unsatisfactory. Attempts at cross-protection with smallpox vaccine or at direct immunization with herpes simplex vaccine have been disappointing. Early reports of benefit from the use of aureomycin have not been substantiated by critical clinical and laboratory investigation. In severe cases with widespread involvement, the use of the new antibiotics is justified as a protection against bacterial invasion and synergism.

Herpes Zoster

The remarks in the preceding section on the use of antibiotics also apply to the treatment of herpes zoster, which is caused in the adult by the same virus which produces chickenpox in the child, although the reverse can occur at times. The antibiotics should not be withheld in severe cases of herpes zoster in elderly and debilitated patients nor possibly from patients with herpes zoster ophthalmicus, although one should remember that the antibiotics apparently have no antiviral action, at least on the smaller viruses.

METABOLIC, ENDOCRINE AND CONGENITAL DISTURBANCES

An interesting cutaneous picture is occasionally seen in the following metabolic, endocrine and congenital disturbances.

Diabetes Mellitus

The cutaneous lesions in diabetes mellitus occur in the form of glazed violaceous plaques on the lower extremities (fig. 4). These plaques, which

FIG. 4.—Necrobiosis lipoidica diabeticorum.

have a characteristic histopathologic appearance, only occasionally respond to the usual management of diabetes. This dermatosis, however, is very rare compared to the pyodermata and moniliasis to which these patients are so prone.

Circumscribed Myxedema

Overproduction of a thyroid-stimulating hormone by the anterior lobe of the pituitary can be responsible for exophthalmos. This same hormone, particularly in patients in whom thyroidectomy has been performed, will occasionally produce yellowish, pigskin-like pretibial plaques of so-called localized myxedema. These plaques do respond, at least temporarily, to the local injection of hyaluronidase.

Xanthomatosis

We often see xanthomatoses together, particularly in the form of xanthelasma (fig. 7, color plate), which responds to local destructive methods. Recent genetic studies have shown that familial hypercholesterolemia is transmitted as a dominant xanthoma tuberosum representing the homozygous abnormal. Gofman and his associates have shown a high concentration of heavy molecular lipoproteins in such subjects. The fact that these molecules decrease following a low fat, low cholesterol diet indicates that these patients may be spared the early coronary disease to which they are prone. Patients with xanthelasma should be put on a similar diet.

Porphyria and Related Conditions

Porphyria, both in the congenital and in the chronic form, may affect the skin by producing erythematous and bullous changes of the exposed parts due to light sensitivity. This uncommon error of metabolism occasionally will respond to an anticirrhotic regimen aimed at correcting the underlying hepatic insufficiency present in the chronic form. Certain forms of hydroa estivale (fig. 5) and epidermolysis bullosa probably represent variants of this disease.

Xeroderma Pigmentosum

Another error of metabolism is represented by xeroderma pigmentosum, which is manifested by early aging and atrophy of the skin, followed by the development of basal and squamous cell carcinomas of the exposed parts. The outcome in the majority of cases is fatal during childhood. Treatment consists of protection of the exposed parts from the sun and removal of malignancies as they develop.

Pseudoxanthoma Elasticum

Degeneration of elastic fibers will cause pseudoxanthoma elasticum, a systemic disease in which the skin manifestations (fig. 8, color plate) consist of streaks of yellowish papules in the neck, axillae and groin. No specific

FIG. 5—Hydroa estivale.

FIG. 6—Vitamin A deficiency.

FIG. 7—Pellagra.

treatment is available at present, although benefits have been claimed from the use of tocopherols.

DEFICIENCIES

Vitamin A

Of the dietary deficiencies, avitaminosis A is perhaps the most important, clinically and historically. The cutaneous lesions (fig. 6) consist of follicular hyperkeratoses of the extensor surfaces and horny plugging, in addition to a general dryness and roughness of the skin. The response to high doses of vitamin A is satisfactory and prompt.

Vitamin B Group

Pellagra, a deficiency in niacin, which is usually combined with other vitamin deficiencies, is characterized by erythematosquamous and symmetrical pigmented patches on the exposed parts due to light sensitivity. Here again, therapeutic response is good (fig. 7).

Ariboflavinosis, often associated with pellagra, is manifested by macerated fissured lesions at the angle of the mouth (fig. 9, color plate) and by scaling of the lips. This is accompanied at times by glossitis and a seborrhea-like dermatitis.

UNKNOWNS

Of the disease of unknown causation, three are of particular importance to us.

Rosacea

This condition, which is characterized by telangiectasias and papules on the cheeks and nose (fig. 10, color plate), probably represents a syndrome due to one or a combination of several etiologic elements. Among the possible causative factors are endocrine, digestive, emotional, and physical disturbances, die-

tary deficiencies, and infectious and parasitic agents, although recent studies have failed to incriminate any of these specifically. A relationship with ariboflavinosis has been postulated, and some patients will respond to the administration of high doses of riboflavin. Other patients will respond to the time-honored combination of rest, hydrochloric acid, avoidance of hot foods, local applications of sulfur and resorcin, and roentgen therapy. Lately, local massage has been claimed to produce better results than any of these forms of treatment. Since some cases will respond rapidly to one or another of these modalities, a variety of possible causative factors is indicated.

Pemphigus Vulgaris

The term pemphigus formerly included pemphigus neonatorum and acute or butcher's pemphigus, both of which belong in the severe pyodermata. Pemphigus is seen in three forms: vulgaris, vegetans, and foliaceus, all variants of the same disease.

Pemphigus vulgaris (fig. 11, color plate) is manifested by successive crops of bullae of the skin and mucous membranes, accompanied by toxic phenomena. Its etiology still remains a mystery. Its prognosis remains almost hopeless, in spite of the remissions obtained by the use of ACTH or cortisone, combined with high doses of antibiotics. In most cases, however, relapses will occur, and in some instances the condition is completely refractory to this form of treatment.

Seborrheic Dermatitis

Seborrheic dermatitis is one of the most common dermatoses which involve the eye. It is characterized by erythema and scaling of the scalp, eyebrows and lids, nasolabial folds, and retroauricular and sternal areas. Constitutional, dietary and possibly emotional factors play a part in the disease. There also is a strong bacterial component to cutaneous seborrhea, as inferred from the temporary response to mercury, sulfur, neomycin and bacitracin ointments (fig. 12, color plate).

TUMORS

Finally, a good addition to our armamentarium for the treatment of malignancies of the skin should be mentioned. The chemosurgical method of Mohs allows the accurate selective removal of all neoplastic tissue, with a great salvage of normal cells. This method consists of fixation of tissue in situ by application of a zinc chloride paste and localization of the malignant tissue under the microscope. The procedure is repeated every day until the last neoplastic cell is removed. In our opinion, this method is particularly indicated in lesions located around the eye, since loss of vital structure is thereby avoided in some cases.

BIBLIOGRAPHY

GENERAL

Artom, M.: Relações gerais entre moléstias da pele e lesões oculares, Rev. paulista de med., 29:261-270 (Oct.) 1946; (abstr.) Arch. Ophth., 41:98 (Jan.) 1949.

Burch, Edward P., and Freeman, Charles D.: Associated diseases of the skin and eye, Minnesota Med., 33:147-153; 190 (Feb.) 1950.

Crosti, A., and Alagino, B.: Malattie cutanee e veneree ed alterazione oculare, Palmero, S. F. Flaccovio, 1948.

Givner, Isadore: Some associated eye and skin manifestations of systemic disease, New York State J. Med., 48:2700-2705 (Dec. 15) 1948.

Schönfeld, Walther: Dermatologie für Augenaertze, Stuttgart, Georg Thieme, 1947.

GRANULOMAS

Faget, G. H., and Erickson, P. T.: Chemotherapy of leprosy, J.A.M.A., 136:451-456 (Feb. 14) 1948.

Michelson, H. E.: Scarcoidosis: a review and an appraisal, J.A.M.A. 136:1034-1038 (April 17) 1948.

———: Criteria for the diagnosis of certain tuberculoderms, J.A.M.A., 138:721-726 (Nov. 6) 1948.

Németh, Ludwig: Augenveränderungen bei tuberkulösen Hautkrankheiten mit besonderer Berücksichtigung des Augenhintergrundes, Ophthalmologica, 115:167-173, 1948.

Rostenberg, A., Jr.,: Etiologic and immunologic concept regarding sarcoidosis, Arch. Dermat. & Syph., 64:385-406 (Oct.) 1951.

Tita, C.: Sur un caso di bottone d'oriente unico palpebrale. Inoculazione di tessuto leishmanioso nell'occhio di cane, Arch. ottal. 45:86-100 (March-April) 1938.

Small, M. J.: Favorable response of sarcoidosis to cortisone treatment, J.A.M.A., 147: 932-937 (Nov. 3) 1951.

ERYTHEMAS

Carleton, A.: Vesico-bullous diseases affecting the eye, Brit. M. J., 2:835-837 (Oct. 15) 1949.

Costello, Maurice J.,: Erythema multiforme exudativum (erythema bullosum malignans-pluriorificial type) personal observations of cases in Willard Parker Hospital for contagious diseases (1932-1946), J. Invest. Dermat., 8:127-144 (March) 1947.

Robinson, H. M., Jr., and McCrumb, F. R., Jr.: Comparative analysis of mucocutaneous ocular syndromes, report of eleven cases and review of the literature, Arch. Dermat. & Syph., 61:539-560 (April) 1950.

Soll, S. N.: Eruptive fever with involvement of the respiratory tract, conjunctivitis, stomatitis and balanitis; an acute clinical entity, probably of infective origin; report of twenty cases and review of the literature, Arch. Int. Med., 79:475-500 (May) 1947.

ALLERGIC DERMATOSES

Cowan, Alfred, and Klauder, Joseph V.: Frequency of occurrence of cataract in atopic dermatitis, Arch. Ophth., 43:759-768 (April) 1950.

Davison, R.: BAL therapy of dermatitis caused by injection of gold salts, Stanford M. Bull., 5:37-39 (Feb.) 1947.

Hill, L. W.: An evaluation of therapy in infantile eczema, J.A.M.A., 140:139-141 (May 14) 1949.

Thompson, R. G.: Cataract with atopic dermatitis, dermatologic aspects, with special reference to preoperative and postoperative care, Arch. Dermat. & Syph., 61:433-441 (March) 1950.

Underwood, G. B., and Gaul, L. E.: Overtreatment dermatitis in dermatitis venenata due to plants, J.A.M.A., 138:570-582 (Oct. 23) 1948.

COLLAGEN DISEASES

Beerman, H.: The L. E. cell and phenomenon in lupus erythematosus, Am. J. M. Sc. 222: 473-481 (Oct.) 1951.

Cordes, Frederick C., and Aiken, Samuel D.: Ocular changes in acute disseminated lupus erythematosus, report of a case with microscopic findings, Am. J. Ophth., 30:1541-1555 (Dec.) 1947.

Disseminated Lupus Erythematosus, (Editorial.) J.A.M.A., 141:846-847 (Nov.) 1949.

Hartmann, E., Collin, P., and Vergne, P. Sclerodermie et lesions du fond d'oeil, Ann. d'ocul., 181:220-224 (April) 1948.

Rich, A. R., and Gregory, J. E.: Experimental anaphylactic lesions of the coronary arteries of the "sclerotic" type, commonly associated with rheumatic fever and disseminated lupus erythematosus, Bull. Johns Hopkins Hosp., 81:312-324 (Nov.) 1947.

Symposium on lupus erythematosus including recent development in diagnosis and treatment, Arch. Dermat. & Syph., 61:887-924 (June) 1950.

UNKNOWN ETIOLOGY

Cawley, E. P., and Curtis, A. C.: The rosacea complex, including its ocular component, Am. Pract., 4:119-123 (Nov.) 1949.

Gellis, Sidney, and Glass, F. A.: Pemphigus, a survey of one hundred seventy patients admitted to Bellevue Hospital from 1911 to 1941, Arch. Dermat. & Syph., 44:321-336 (Sept.) 1941.

Michelson, H. E., and Laymon, C. W.: Lichen planus of the eyelids, Arch. Dermat. & Syph., 37:27-29 (Jan.) 1938.

Rossler, F.: Psoriasis de la conjonctive, Bull. Soc. Ophth., Vienna, Feb. 22, 1943, p. 42.

Søbye, P.: Aetiology and pathogenesis of rosacea, Acta dermat-venereol., 30:137-162 (Nov.) 1950.

ENDOCRINE AND METABOLIC

Brunsting, L. A., and Mason, H. L.: Porphyria with cutaneous manifestations, Arch. Dermat. & Syph., 60:66-81 (July) 1949.

Curtis, A. C., Cawley, E. P., and Johnwick, E. B.: Association of progressive (malignant) exophthalmos and localized myxedema, Arch. Dermat. & Syph., 60:318-337 (Sept.) 1949.

Fliegelman, M. T., Wilkinson, C. F., Jr., and Hand, E. A.: Genetics of Xanthoma tuberosum multiplex, Arch. Dermat. & Syph., 58:409-429 (Oct.) 1948.

Gofman, John W., Lindgren, Frank T., Jones, Hardin B., Lyon, Thomas P., and Strisower, Beverly: Lipoproteins and atherosclerosis, J. Gerontol., 6:105-119 (April) 1951.

Lowry, P. T., Schmidt, Rudi, Hawkinson, Violet E., Schwartz, Samuel and Watson, C. J.: Porphyria, clinical manifestations in relation to chemical findings, Bull. U. of Minn. Hosp., 22:97-110 (Nov. 17) 1950.

Revell, Samuel T. R., Jr., and Carey, T. Nelson: Pseudoxanthoma elasticum as a disseminated disease, South. M. J., 41:782-790 (Sept.) 1948.

Wilkinson, C. F., Jr., Hand, E. A., and Fliegelman, M. T.: Essential familial hypercholesterolemia, Ann. Int. Med., 29:671-686 (Oct.) 1948.

CONSTITUTIONAL

Beherman, H. T., and Lee, K. K.: Sjogren's syndrome, Arch. Dermat. & Syph., 61:63-79 (Jan.) 1950.

Knapp, P.: Einseitige Alopecia der Augenbraue, Ophthalmologica, 111:67 (Feb.-March) 1946.

Maeder, Guy: Le syndrome de Rothmund et le syndrome de Werner (étude clinique et diagnostique), Ann. d'ocul., 182:809-854, 1949.

Saebo, J.: Xeroderma pigmentosum with affection of the eye, Brit. J. Ophth., 32:398-411 (July) 1948.

DEFICIENCIES

Finnerud, C. W.: Perleche, its nosologic status, J.A.M.A., 126:737-740 (Nov. 18) 1944.

Frazier, C. N., Hu, C. K., and Chu, F. T.: Variation in the cutaneous manifestations of vitamin A deficiency from infancy to puberty, Arch. Dermat. & Syph., 48:1-14 (July) 1943.

Keddie, Frances: Use of vitamin A in treatment of cutaneous diseases. Relation to estrogen and the vitamin B complex, Arch. Dermat. & Syph., 58:64-73 (July) 1948.

Porter, A. D., Godding, W. E., and Brunauer, S. R.: Vitamin A in Darier's disease, Arch. Dermat. & Syph., 56:306-316 (Sept.) 1947.

TUMORS

Mohs, F. E.: Chemosurgical treatment of cancer of face, a microscopically controlled method of excision, Arch. Dermat. & Syph., 56:143-156 (Aug.) 1947.

———: Chemosurgical treatment of melanoma, a microscopially controlled method of excision, Arch. Dermat. & Syph., 62:269-279 (Aug.) 1950.

VIRUS DISEASES

Blank, H., Burgoon, C. F., Baldridge, G. D., McCarthy, P. L., and Urbach, F.: Cytologic smears in diagnosis of herpes simplex, herpes zoster, and varicella, J.A.M.A., 146:1410-1412 (Aug.11) 1951.

Hallett, J. W., Leopold, I. H., Vogel, A. W., Cannon, E. J., and Steinmetz, C. C.: Treatment of experimental herpes simplex keratitis in the rabbit, Arch. Ophth., 46:33-38 (July) 1951.

BILATERAL MARGINAL MYOTOMY

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PHILADELPHIA, PA.

MARGINAL myotomy is an operation for the correction of convergent strabismus. Two incisions are placed in the margins of the internus, opposite each other, well posterior to the inelastic tendon. Marginal myotomy differs from other similar operations in that the incisions are more posterior, severing all but the central 3 millimeters of each internus and involving part of the nerve supply as well. These differences make the operation more effective than the various forms of partial tenotomy. The operation, as recommended by Chavasse,[1] is used only as an occasional replacement for recession in those patients where conservatism is especially indicated, and is not recommended as a complete substitute for such a reliable procedure as recession. The purpose of this operation is to reduce the incidence of such untoward complications as postoperative divergent deviations, of subnormal adduction, and subnormal convergence.

SELECTION OF PATIENTS

Since the final position of the eyes after this operation is dependent on whether binocular vision develops, the selection of patients must be more carefully made than for other muscle operations. The average patient with esotropia will not respond satisfactorily to this operation. The two main groups from which patients are selected for this operation are those in which there is a reasonable probability that binocular vision will develop and those in which postoperative divergent deviations are especially likely to occur. The assumption that binocular vision might develop is based on the combinations of two groups of factors. Factors related to time comprise the first group. An appreciation of the significance of the time factors is based on a comparison of the normal development of binocular vision in a normal person and the abnormal development in a strabismic subject. The time factors which should be favorable are the age of onset, the duration of the deviation, and the age of the patient at the time of operation. The results following marginal myotomy have been better in patients in whom onset of the strabismus was after the age of one and a half years, whose duration of the strabismus was less than one and a half years, and whose age at operation was less than five years.

The second group of factors upon which the probable development of binocular vision is based concerns the similarity of the findings in each eye. The vision, the fixation, the ocular excursions, and the refractive error should be approximately equal in each eye. Occlusion must be used before operation to correct amblyopia and unilateral fixation. The patient should alternate fixation easily before operation. If he does not, a partial recurrence of the deviation is highly probable.

The second group of patients from which candidates are selected for this operation are those for whom a procedure more conservative than recession is indicated because postoperative exo-

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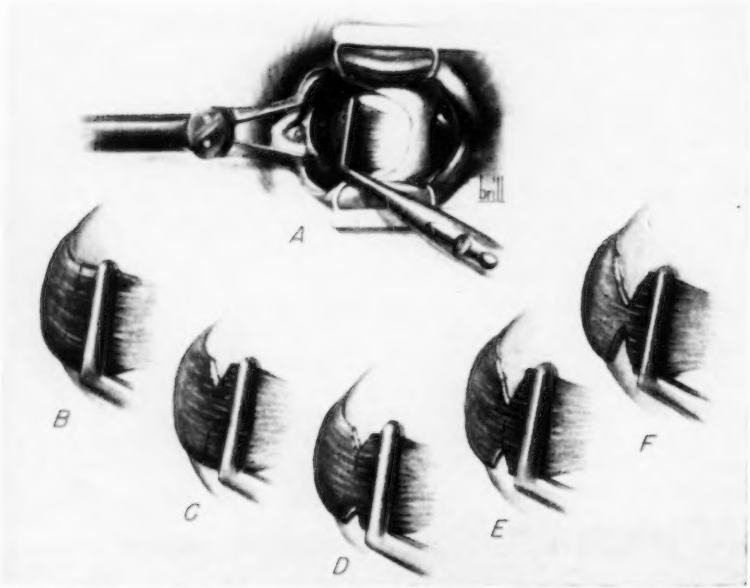


FIG. 1.—Operative technic. (A) Exposure of medial rectus muscle. The dotted lines represent the location and length of the planned incision. (B-E) The alternate elongation of the two muscle incisions in short snips so as to preserve the central 3 mm. of the muscle. (F) Completed incisions.

tropia is a likely possibility. Exotropia may be anticipated in patients who are very young, in patients in whom the strabismus was present at birth or occurred during the first six months of life, in patients with high hyperopia, and in patients with variablity in the amount of the strabismus. The types of variable strabismus are accommodative, intermittent, and strabismus of recent origin.

These two groups of patients, in the absence of contraindications, usually respond satisfactorily to marginal myotomy.

OPERATIVE TECHNIC

The conjunctival incision is the same as for recession of the internus (fig. 1). The muscle is exposed more posteriorly than for other operations, usually about 10 millimeters from the insertion. The muscle is dissected free from Tenon's capsule and the eye rotated laterally. A spreading retinal detachment speculum, inserted nasally, facilitates the posterior exposure. The muscle is steadied by a muscle forceps about 7 millimeters from its insertion. Two incisions, one in each margin of the muscle, directly opposite each other are placed posterior to the muscle clamp at right angles to the muscle fibers approximately 9 millimeters from the insertion. These incisions are elongated in a series of short snips so as to preserve only the central 3 millimeters of the muscle. The incisions appear to be too long when the operation is properly performed. One of the disadvantages is that the difference between too little, which accomplishes little or no reduction in the deviation,

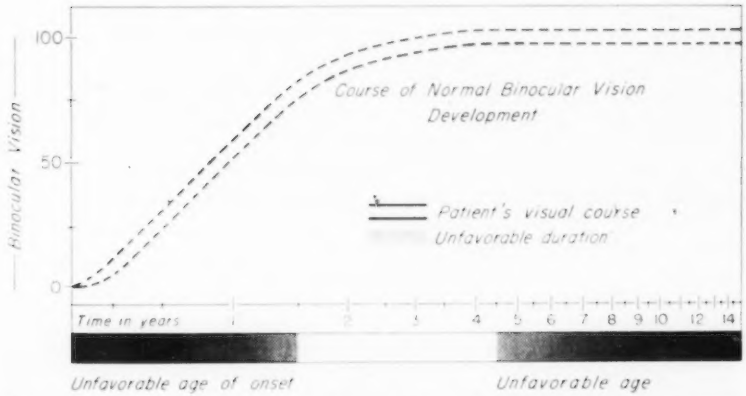


FIG. 2.—Schematic diagram of the development of normal binocular vision. Binocular vision is graphed on the ordinate and time on the abscissa, which has been compressed to emphasize the relatively more important first five years. The dotted-line curves represent the presumed development of binocular vision. The first part of the shaded base line represents the unfavorable age of onset, and the second, the unfavorable age for marginal myotomy.

and too much, which could cause a serious exotropia, is relatively small. With experience, the correct amount of unsevered muscle can be more easily judged; therefore, this procedure should not be condemned on the basis of a few failures. The conjunctiva is closed, the bandage removed in 48 hours, and the patient may be discharged on the second or third postoperative day.

THE OBJECTIVES

The objectives of the operation are (1) the reduction of the excessive action of the internus without impairing its normal function in adduction and convergence; (2) the reduction of the deviation without postoperative divergent deviations, and (3) the recovery of binocular vision. If binocular vision does not develop, it is desirable to have a slight residual esotropia. The effects of the operation may be immediate, in which case the eyes are almost always straight, may last a month, or may be permanent. The intermediate results are those in which the ocular positions are unstable in that recurrent esotropia may be intermittent or constant and last for one or two years. The late results may be a cosmetic and a functional success, or a cosmetic success only, or neither a cosmetic nor a functional success.

The effects of the operation are the same regardless of the amount of preoperative deviation, and therefore, for strabismus of short duration, unlike that of long standing, graduated doses of surgery based on the amount of preoperative deviation are not necessary. If normal binocular vision develops, the eyes remain straight; if only peripheral binocular vision develops, the eyes remain almost straight; and if binocular vision does not develop, a slight residual esotropia usually occurs. This is desirable in that it tends to prevent subsequent exotropia. This residual esotropia tends to diminish as the years go by and hence secondary operations are contraindicated as a rule. If the recurrent esotropia is approximately 15 degrees, other secondary operations are necessary to complete the surgical program.

THE RESULTS

The end results of marginal myotomy may be illustrated by case reports of sample types of end results more effectively than by statistical generalizations. In the sample cases the preoperative position of the eyes is compared photographically with the postoperative position. Following the photographs, a schematic chart permits comparisons between the abnormal development of binocular vision of each patient and the normal development of binocular vision. Since the curves are based on assumed development and not on precise measurements, they leave much to be desired, but they do serve the practical purpose of illustrating an explanation for the successes and the failures. In figure 2, binocular vision is graphed on the ordinate, and time in years on the abscissa. The broken curve lines represent the development of binocular vision and illustrate that the function, which at birth is relatively low, at the age of 5 years has reached normal levels. The term "binocular vision" is used to signify merely the simultaneous perception of dissimilar bidimensional stereoscopic targets and the associated fusional reflexes. The first shaded portion of the base line represents the unfavorable age of onset, and the second, the unfavorable age for operation.

CASE REPORTS

Case 1.—The preoperative deviation and the corrected position eleven years after operation are shown in figure 3 a and b. The patient had a nonaccommodative comitant right esotropia which became alternating following occlusion. The deviation, which increased with glasses, was corrected six months after the first examination by marginal myotomy. The end result was one prism diopter of exophoria which followed a two-year unstable period.

FIG. 3.—Case 1. (a) Preoperative esotropia; (b) corrected position eleven years after marginal myotomy.

Marginal myotomy was considered adequate because the onset was relatively late, the duration relatively short, and the age favorable for the recovery of binocular vision as shown in figure 4, together with the fact that the vision, fixation, excursions, and refraction were similar in each eye. This excellent cosmetic and functional result is not attributed to the surgical accuracy or to this particular type of operation, but rather to the fact that binocular vision and the fusional reflexes had not been permanently impaired from disuse or disease.

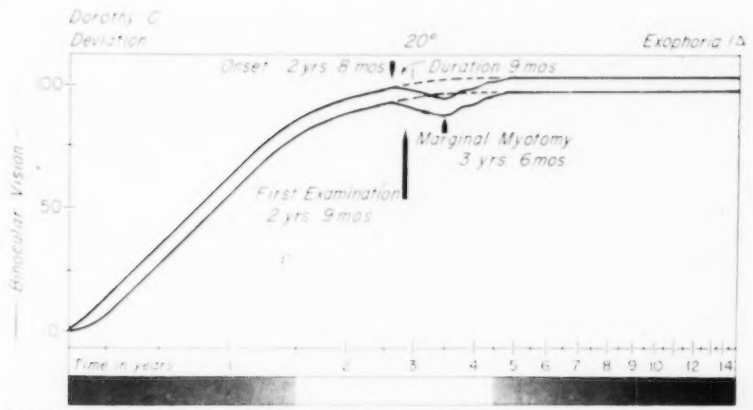


FIG. 4—Case 1. Schematic comparison of binocular development with the normal in a functional and cosmetic successful result. The continuous lines represent the patient's binocular development and are superimposed on the normal curve until the onset of the deviation. The discontinuance of normal development and the impairment from disuse is represented by the separation of the continuous lines from the dotted lines. The wavy lines after operation denote the unstable but improving binocularity, which later attained normal levels. The onset was past the unfavorable age, the duration was not sufficiently long to become unfavorable. The patient was sufficiently young at operation. The preoperative and postoperative amount of deviation is shown above the chart.

Case 2.—The preoperative deviation and the corrected position of the eyes ten years after surgery are shown in figure 5, a and b. The patient had a monocular nonaccommodative esotropia which became alternating following occlusion and was unimproved by glasses. The time factors were all favorable and the findings were similar in each eye (fig. 6). Marginal myotomy was selected because a conservative operation seemed adequate. Following the operation the patient developed an exotropia, which was attributed to excessive length of the muscle incisions. However, the eyes became straight after a two-year unstable period and binocular vision developed. The end result was 9 prism diopters of esophoria. This case illustrates the importance of binocular reflexes when the time factors are favorable in that they resulted in a correction of the deviation in spite of excessive surgery in which the end result was both a cosmetic and functional success without orthoptic treatment.

Case 3.—The preoperative deviation and the corrected position ten years after operation are demonstrated in figure 7, a and b. The patient had an alternating esotropia, unimproved by glasses. The time factors were favorable and the findings were similar in each eye. Figure 8 illustrates that binocular vision was recovered and the end result was 9 prism diopters of esophoria for distance. Marginal myotomy was selected for this patient because his convergence near point was remote and exotropia was anticipated if recessions were performed. While he has normal prism vergence for distance, he uses alternate fixation for near. This case illustrates a cosmetic and partial functional success.

Case 4.—The marked preoperative and slight residual esotropia ten years after marginal myotomy are shown in figure 9, a and b. The patient had an accommodative and anisometropic esotropia in which equal vision and fixation did not follow occlusion. In figure 10 the unfavorable age of onset and unfavorable duration are illustrated. The end result is 6 prism diopters of esotropia for distance without glasses. While the end result is a cosmetic success, she has only peripheral binocular vision. Marginal myotomy is not indicated in this type of case but was selected because a sister, operated upon elsewhere, developed postoperative exotropia and the parents were understandably concerned.

Case 5.—The preoperative deviation and the almost imperceptible improvement following two operations are shown in figure 11, a and b.

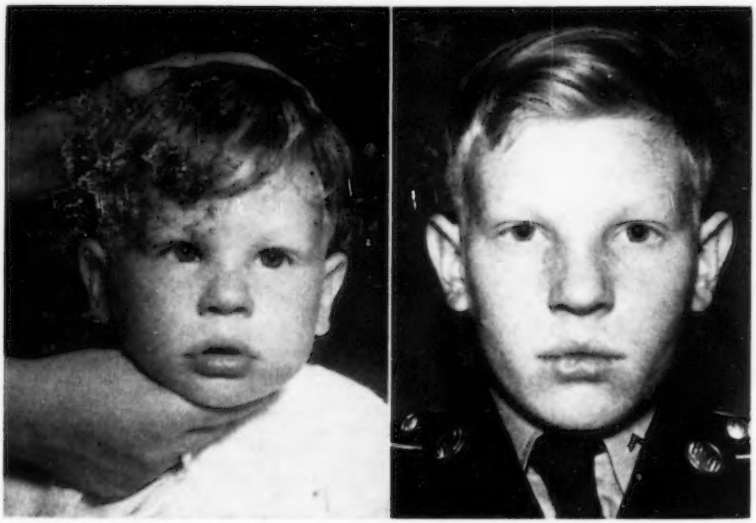


FIG. 5—Case 2. (a) Preoperative esotropia; (b) corrected position eleven years after marginal myotomy.

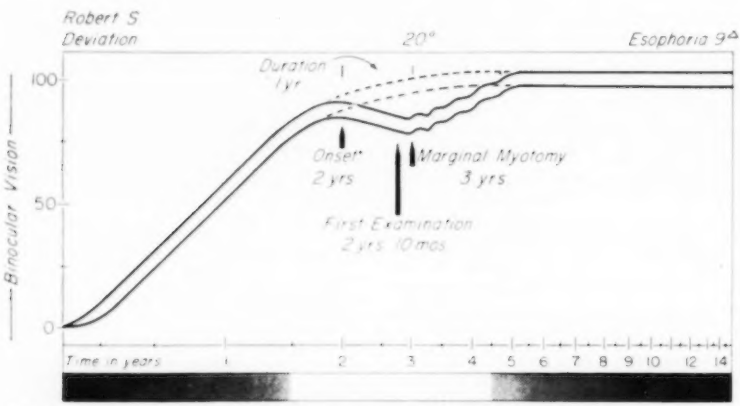


FIG. 6—Case 2. The patient's departure from and return to binocular vision is represented by the continuous dark lines illustrating the favorable timing of all factors resulting in a functional success.

The patient, who had neither a cosmetic nor a functional success, is shown as an example of the type of patient on whom this operation should not be done. She had a monocular esotropia with a high anisometropic compound hyperopic astigmatism with amblyopia ex anopsia. Figure 12 illustrates the unfavorable age of onset, duration, and age at operation together with the dissimilar findings in the two eyes to represent the contraindications for marginal myotomy. The initial postoperative result was satisfactory, but subsequently the esotropia not only returned to but exceeded its preoperative amount. A recession-resection procedure was subsequently done, but the end result remains unsuccessful. In retrospect, the recession and resection should have been the procedure of first choice.

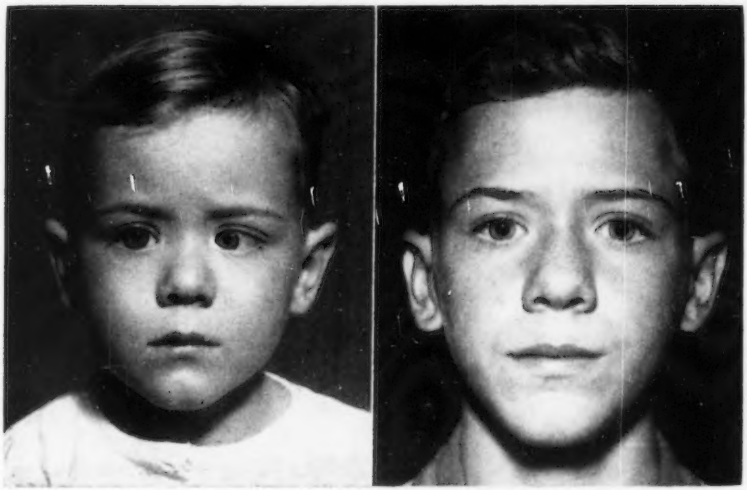


FIG. 7—Case 3. (a) Preoperative esotropia; (b) corrected position nine years after marginal myotomy.

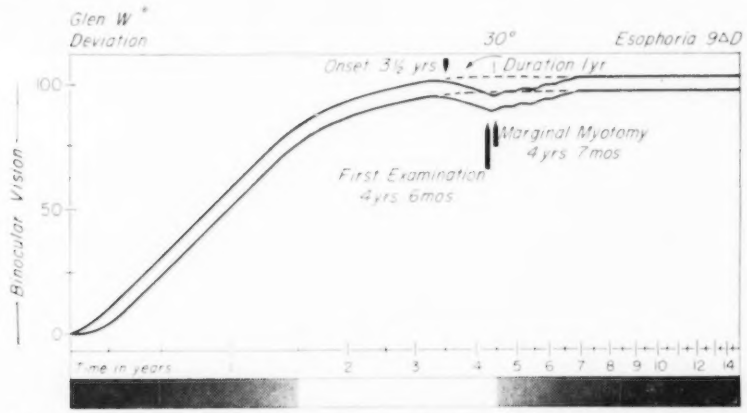


FIG. 8—Case 3. The patient's departure from and return to binocular vision. The time factors were all favorable and the result is a functional success.

Case 6.—This case illustrates a cosmetic success in an accommodative strabismus in which the eyes were grossly convergent without glasses but approximately straight with glasses. The uncorrected deviation is shown in figure 13 a, and the corrected position without glasses nine years after operation is shown in figure 13 b. In figure 14 it can be seen that while the age of onset was favorable, the duration and operative age were not. The patient had alternating esotropia which became very marked as soon as the glasses were removed. The parents requested correction of the esotropia. Following marginal myotomy the eyes remained apparently straight without glasses. Nine years later the cover test revealed 9 prism diopters of esotropia for distance without glasses, which he no longer uses. While the eyes appear straight, he still has alternate fixation. The advisability of surgery is questionable, and care must be exercised less the improvement which is due to optical correction be attributed to the surgery in similar cases.

FIG. 9.—Case 4. (a) Preoperative esotropia; (b) improved position ten years after marginal myotomy; cosmetic success only.

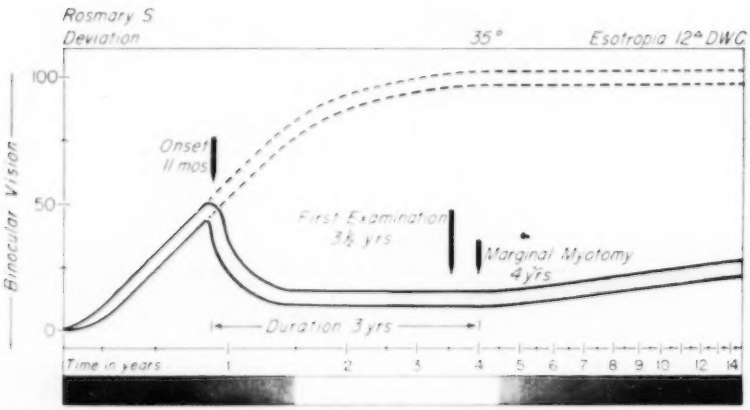


FIG. 10.—Case 4. The schematic chart illustrated the failure of binocular vision to approach normal levels and is attributed to the unfavorable early age of onset, and the unfavorable duration signified by the dotted portion of the patient's curve.

Case 7.—This case illustrates a cosmetic success in a patient in whom the onset of strabismus was at birth. The preoperative and postoperative positions are demonstrated in figure 15, a and b photographically. Figure 16 illustrates that the onset was at birth and the duration was four and a half years. The vision, the refraction, and excursions were similar in each eye and he had alternate fixation. Following marginal myotomy, the eyes

FIG. 11—Case 5. (a) Preoperative esotropia; (b) postoperative esotropia following marginal myotomy and a recession-resection of the left eye.

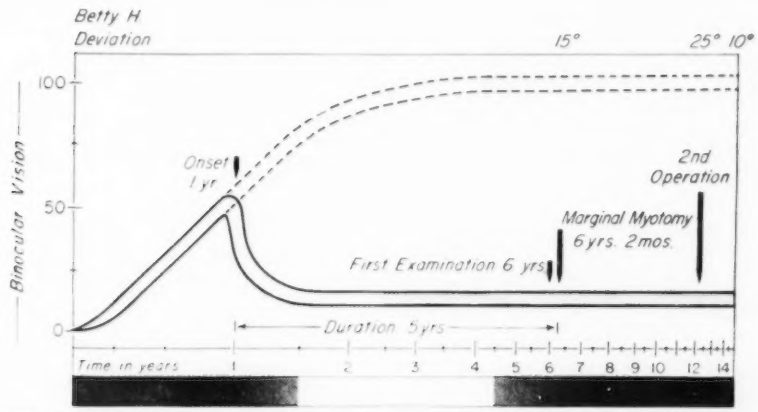


FIG. 12—Case 5. This patient illustrates neither a functional nor a cosmetic success; all the time factors were unfavorable.

were esotropic for a year and then became straight, but the patient has now developed intermittent inattentive exotropia. This unusual sequence of events is attributed to the failure of binocular vision due to the early onset and long duration. It illustrates that even a conservative procedure, which was initially inadequate, ultimately was too much and suggests that the more extensive procedure of recession might have been even more unsatisfactory.

INTERPRETATION OF RESULTS

The end results of marginal myotomy are reasonably gratifying. In an unselected series of 43 adequately followed patients whose initial muscle operation was marginal myotomy, 27 per cent were functional successes and 62 per cent were cosmetic successes, a total of 89 per cent whose results were either

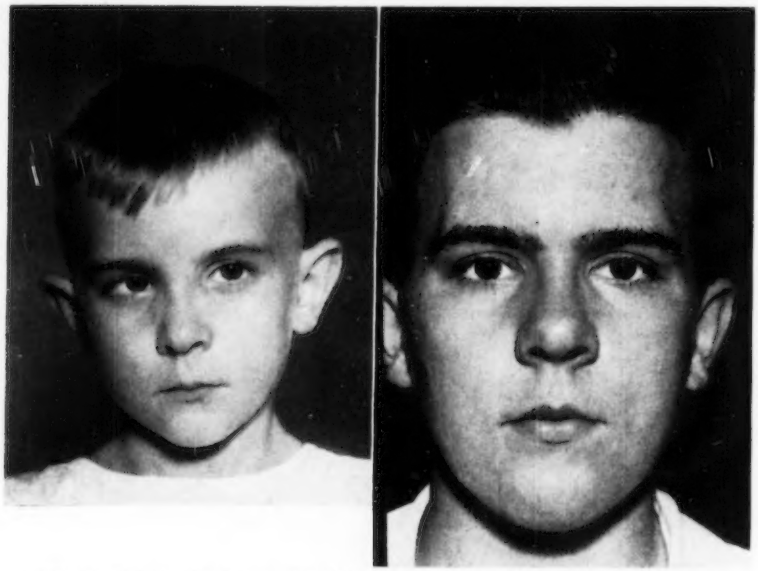


FIG. 13—Case 6. (a) Preoperative deviation; (b) corrected position without glasses.

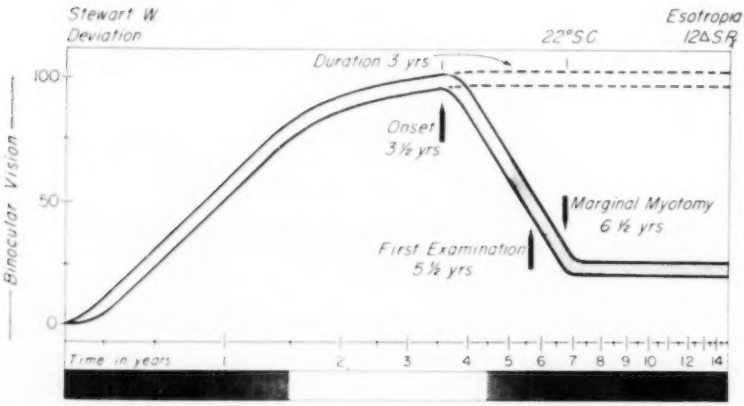


FIG. 14—Case 6. This cosmetic success but functional failure is attributed to the long duration and the unfavorable operative age.

satisfactory or completely successful. Eleven per cent were unsatisfactory. The objectives of the procedure which were previously mentioned were achieved in almost all cases except for binocular vision. Had orthoptics been available, perhaps more of the patients would have attained binocular vision. Only one case of intermittent and one case of permanent exotropia of insufficient degree to warrant reoperation were encountered. None of the patients had subnormal convergence or limitations of movement in the field of action of the

FIG. 15—Case 7. (a) Preoperative esotropia; (b) corrected position.

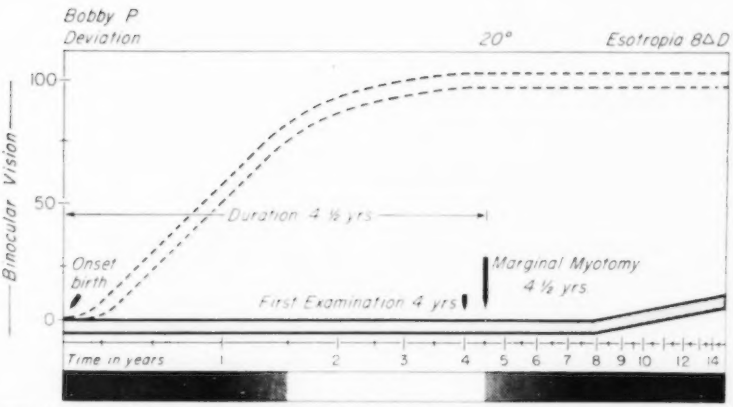


FIG. 16—Case 7. The cosmetic success but functional failure is attributed to the onset at birth and the long preoperative duration.

interni. The best results were naturally in the accommodative types of strabismus, and the use of glasses for a long time after operation proved to be extremely important. The high incidence of slight residual esotropia is a desired feature in the nonbinocular group. While marginal myotomy has proved to be a worth-while adjuvant operative procedure, it is not claimed that it will accomplish what other procedures cannot do. It is to be remembered that it is not to be used without careful consideration and good technic, if the pitfalls are to be avoided.

CONCLUSION

Marginal myotomy is an operative procedure which has proved to be of value in the correction of strabismus. Success with this procedure is dependent on the proper selection of patients, the proper performance of the operation, and the development of binocular vision. Recurrences, which are frequent, are usually cosmetically insignificant and are attributable to failure of the development of binocular vision when the selection of the patient and performance of the operation were properly carried out.

REFERENCE

1. Worth, C.: Worth's Squint or the Binocular Reflexes and the Treatment of Strabismus. F. Bernard Chavasse, editor. 1939, Ed. 7, P. Blakiston, Philadelphia, 688 pp.

DISCUSSION

HAROLD W. BROWN, M.D., New York, N.Y.: I agree with Dr. Gibson that the cases he has so carefully selected for marginal myotomy will usually require conservative surgery on the interni. His 89 per cent of satisfactory results, with only 2 cases of slight overcorrection in a series of 43 primary operations, indicates that this surgical procedure in Dr. Gibson's hands is indeed conservative.

The early alignment of the eyes in any type of alternating squint is of course an important factor in obtaining a permanent functional result. It has been my experience, however, that the more careful the management of the accommodative factor by refraction during the unstable period of early childhood, the fewer will be the cases that will require surgery. The temporary use of bifocals or moderate overcorrection in the accommodative convergent deviations in preschool children, will often carry them over a period of instability. Dr. Gibson's relatively low percentage of functional results in such clinically favorable material, may well be due to the exclusion of the successfully treated accommodative cases from this series.

The evidence is that excessive action of the interni on the version test, as mentioned in the selection of candidates for marginal myotomy in the second group of cases, will respond well to either small recessions or marginal myotomies. It is the cases, usually the cross fixers, that show a normal inward rotation of the eyes on version tests that will require consideration of other findings and variables in selecting the best operative procedure. For example, if the near point of convergence is relatively poor or if there is no appreciable difference between the deviation for distance and near fixation, it may be preferable to operate on the externi. The correction of a significant vertical deviation will often reduce or fully correct a disfiguring lateral anomaly.

Dr. Gibson's concern in overcorrection, and especially the postoperative limitation of medial rotation, is shared by all ophthalmic surgeons. The procedure of marginal myotomy by maintaining intact the original scleral attachment and an uncut central portion of muscle is apparently an effective safeguard against these complications. The undercorrections that required further surgery on the internus are certainly made more difficult and uncertain by adhesions and scar tissue that usually follow such an extensive dissection. My experience with these postoperative adhesions has deterred me from adapting any type of marginal myotomy on such an important muscle as the internus. A central tenotomy, as described by Stevens, minimizes the adhesions and leaves undisturbed the anatomic relationship of the fascia, muscle and check ligaments. The results under general anesthesia, of course, are uncertain, but next to an unoperated muscle, it offers the least difficulty at reoperation. I wonder if Dr. Gibson has considered or has had experience in some type of tenotomy in his search for additional safe and reliable operative procedure on the internus?

†RICHARD G. SCOBEE, M.D., St. Louis, Mo.: It is a pleasure to have been asked to discuss Dr. Gibson's paper on marginal myotomy. His interest in the particular type of surgical procedure described is well known to those who follow the literature.

He has used a phrase which seems to me singularly appropriate when he speaks of the effects of surgery in tropia cases as being "immediate, transitional, and late." In very young children with a normal excess of convergence and with esotropia, the "immediate" effect of

† Deceased

surgery should be one of keeping the eyes straight 50 to 70 per cent of the time if the ultimate result is to be good. During a year or two after surgery, the "transitional" effect is one of keeping the eyes straight a greater and greater percentage of the time because fusion is developing. The "final" effect—often not clearly established for several years—is fusion with perfectly straight eyes at all times, if the result is good functionally. If in a *young* child with esotropia the eyes are completely straight immediately after operation but are not fusing within one month, I believe one should be gravely concerned about the future because exotropia is a very probable development.

The immediate effect of an operation is largely mechanical. The surgeon has simply changed the dissociated or static position of the eyes in the orbits. The transitional effect is physiologic in that fusion of some sort—either normal or abnormal—is developing as a sensory response to an altered motor situation. Sensory changes require varying amounts of time to become crystallized and stabilized. The concept of surgical effects being immediate, transitional, and final is an excellent one that is worth while remembering.

Of especial interest is the fact that Dr. Gibson found the amount of correction in esotropia resulting from a marginal myotomy to be proportional to the amount of original deviation irrespective of how great that deviation might have been. Thus the *same* operation would tend to result in 20 diopters of correction in the patient with 20 prism diopters of esotropia, and in 35 diopters of correction in the patient with 35 prism diopters of esotropia. Identical results for the recession operation in esotropia were recently published by another investigator (Scobee, R. G., Esotropia; incidence, etiology, and results of therapy. Am. J. Ophth., 34:817-833 (June) 1951). These two independent studies suggest strongly that the choice of operation itself is not particularly significant; the important thing is that some operation be performed. They also suggest that any relationship between degrees of correction and millimeters of surgery performed is purely coincidental.

The marginal myotomy as described by Dr. Gibson and the more widely employed recession operation are basically similar in that both decrease mechanical tension in a muscle *for a time*. Decreasing the tension in a muscle upsets the binocular neuromuscular mechanism's daily task, however inefficiently that may have been performed. Readjustment is necessitated in the neuromuscular mechanism following the upset of surgery and the period of readjustment is probably the "transitional" period mentioned by Dr. Gibson. Fusion of some sort, normal or abnormal, is established and then the "final" effect may be observed.

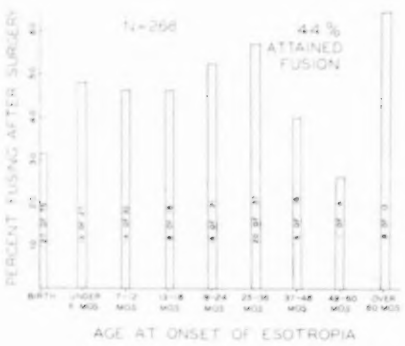
Lancaster has repeatedly emphasized that surgery neither makes muscles stronger nor weaker but instead simply alters the resting position of the eyes. The result of such a change is that innervations now take effect from a new starting position and thus their final effect appears altered. I do not believe the situation is quite as simple as this, but the point should be clear.

The essayist states that exotropia is an infrequent complication following marginal myotomy in esotropia. More than half of the patients with postoperative exotropia that I have seen have had a deviation which is at least partly the result of cicatrization about a lateral rectus muscle. Since Dr. Gibson does not touch the lateral recti, this contributing factor toward exotropia is, of course, not valid. His incidence of postoperative divergence is 4 per cent. In a series of 268 patients with esotropia where a recession of one or both medial rectus muscles was performed the incidence of postoperative divergence was 3 per cent. The recession and the marginal myotomy would seem to be about equal with respect to resulting in postoperative divergence in esotropia.

The author has emphasized the relatively poor prognosis for fusion when esotropia is present from birth. The accompanying graph will furnish further proof of his contention. It represents the final results in 268 patients with esotropia who had surgery. They are considered from the standpoint of whether or not fusion was attained and the age of onset of their deviation.

In addition to highlighting the possible values of another surgical procedure for esotropia, Dr. Gibson's even greater contribution is in adding another bit of physiologic evidence to our relatively meager supply in connection with esotropia. Having agreed whole heartedly with him on his basic ideas, I shall now proceed to disagree on several picayune points. This is an inalienable right of all critics.

Dr. Gibson says that part of the nerve supply to the medial rectus is cut in his marginal myotomy. This is undoubtedly true, but I sug-



gest to you that it is a very small part indeed. The motor nerve to the medial rectus enters that muscle roughly at the junction of the middle and posterior thirds. The tendon of the muscle is almost 4 mm. long and the clamp is placed about 7 or 8 mm. from the insertion, which means about 4 mm. from the tendon end. If the myotomy is performed at the clamp, only about the distal 4 or 5 mm. of the muscle has been denervated. And remember that the central 3 mm. of the muscle is left intact.

The author has been conscientious in showing illustrative cases of both good and bad results. I must, however, take issue with him when he says "The end results of marginal myotomy may be illustrated by case reports and sample types of end results more effectively than by statistical generalizations." In fairness to Dr. Gibson, I do not believe he really means exactly what he has said because other papers of his contain excellent examples of statistical handling of data. I suggest that what he meant was that clinical examples of results make for a far more interesting and dramatic presentation than do statistical tables and, of course, he is right.

A skillful surgeon who shows pictures of his results to inexperienced surgeons may give them a false idea of how easily those same results may be attained. The value of statistics is that one may calculate a trend and thus predict, let us say, the chances of the inexperienced surgeon in attaining good results. I, for one, would be particularly interested in what an inexperienced surgeon might expect from the operation of marginal myotomy because I have never performed the operation. I hope the reasons for my disagreement at this point are clear. The paper was most enjoyable and I thank Dr. Gibson for the opportunity of reading it ahead of time.

GLEN G. GIBSON, M.D.: I should like to express my thanks both to Dr. Brown and to Dr. Scobee for their invaluable assistance in their discussions of this paper. The function of discussers is to protect the audience from the enthusiastic overselling of a procedure by a prejudiced author. I think it is easy to understand, by the trend of their discussion, that they have done their duty, and I am grateful to them.

I do not wish to give the impression that I consider the value of this procedure to be authoritatively settled.

The mechanism of this operation is interesting because there is a fundamental distinction between tenotomies, which are less effective, because the tendon does not stretch as much as the muscle, and this operation, which is dependent on muscle stretch to reduce the deviation. It is for that reason that I do not like the various incisional staggering types of procedures. There is a fundamental distinction between marginal myotomy and recession. In recession the surgeon substitutes an anatomic anomaly, retroplacement of the insertion, for a physiologic anomaly. In marginal myotomy he is preventing an abnormal response from being active. He deprives the patient of his means of responding to the original pathologic physiology.

Dr. Peckham, of our department, who is a statistician, assures me that all the statements which I have made in this paper are based on statistically significant figures, with the exception of one point. My clinical impression is that that one point is the most reliable of the points which I have made, and for that reason, Dr. Scobee, I mean precisely what I said in the paper, when I said that I do not like statistical generalizations. That is not being facetious. It is based on the principle that in concomitant convergent strabismus, we are comparing a number of conditions which are unsuitable for comparison. The difference in onset, the difference in the duration, the difference in etiology, and the difference interposed by vertical errors in secondary concomitant convergent strabismus must make the complications beyond the reach of statistics, and for that reason I have resisted the tempting inclination to use that standard method of showing the results and have, therefore, resorted to the sample types of end results.

There is a danger in this operation in that the simplicity of the technic will appeal to the inexperienced surgeon, and I wish to emphasize, as Dr. Scobee did, that this is a danger-

ous procedure. Too little results in nothing; too much might theoretically result in a serious exotropia. The treatment of young cases, even more than the older ones, requires a reasoned judgment and a thorough knowledge of the pathologic physiology and a knowledge of the over-all course to avoid the pitfalls, to assure anxious parents during the trying transitional period, and to avoid unnecessary, hasty secondary operation.

I am indebted to Dr. Brown for his unbiased discussion. As is well known, his extensive experience makes his discussion of real value. I have not tried the operation which he recommends. Since we have resorted to the use of marginal myotomy, during the past ten years, we have not had a single patient on whom we have had to resort to secondary operations for exotropia. I partially attribute this to marginal myotomy.

INFANT'S AND SMALL CHILD'S SELF-RETAINING SPECULUM

JOHN J. SAUER, M.D.
NEW YORK, N. Y.

FIG. 1.—A self-retaining speculum suitable for use with infants and small children.

IN examining the eyes of infants and small children it was found that present lid retractors were cumbersome and not satisfactory. For these reasons a small self-retaining speculum of stainless steel was devised (fig. 1).

After instilling a local anesthetic in the cul-de-sac of the eye to be examined, with the baby mummified or restrained by sheets and pacified by a sugared nipple, one frequently does not require an assistant. The retracting blades are 10 mm. long and 5 mm. wide at the broadest point. The over-all length of the speculum is 30 mm. The distance between the open tips is 18 mm. The spring is wire and the force of its action may be varied by simply removing the wire from the arms and bending it. The arms are malleable, and for ease of handling their outer borders are serrated proximal to the retracting blades. The instrument may be sterilized by boiling or placing in a sterilizing solution and then washing in saline.

Presented as a *New Instrument* at the Fifty-Sixth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 14-19, 1951, Chicago, Ill.

FIG. 2.—The speculum in place for examination of the eye of a 3 month old infant.

Figure 2 shows the speculum in place in a 3 months old baby with a keratitis. It shows the forced closure of the unexamined eye, Bell's phenomenon and the use of the accessory muscles of the forehead.

I wish to express appreciation to Drs. Rudolf Aebli and Algernon B. Reese for their kind suggestions.

The instrument was made by H. E. Cullman of New York.

TOLMAN COMPARISON MANOMETER

CONRAD BERENS, M.D.
and
CHARLES P. TOLMAN
BY INVITATION
NEW YORK, N. Y.

THE Tolman Comparison Manometer is an outgrowth of our program for prevention of blindness from glaucoma. It was made primarily for use in correlating the Ocular Hypertension Indicator[1] with other tonometers. It is presented because it furnishes an objective test of tonometer friction and because we have found tonometer friction present to a serious degree in a substantial proportion of Schiötz tonometers which have been tested. It is to be noted that the physical conditions of the cornea and the eye as a whole can not be duplicated in a rubber diaphragm. Therefore manometric readings, while comparative, are not absolute with respect to intraocular pressure.

Description

A general view of the instrument is illustrated in figure 1. There are two test units. Each is equipped with an adjustable clamp for holding a tonometer. A lucite tube is used for the manometer column. The graduations of the scale on the right side of the column are in millimeters of mercury. Water is used; therefore, the graduations are 13.6 mm. apart. The 1948 Schiötz correlation scale for the 5.5 gram plunger is on the left hand side of the manometer column. It is proposed to add scales for 7.5 and 10 grams.

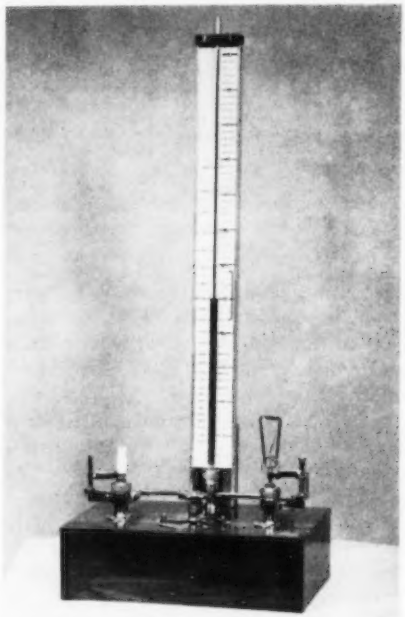


FIG. 1.—Comparison Manometer, general view. Ocular Hypertension Indicator on left test unit; Schiötz tonometer on right test unit.

In the center between the two test units a hand wheel is seen. This hand wheel controls a compressible Fulton bellows. The test units, manometer column and bellows are interconnected by tubing. A stopcock is provided for each test unit for closed manometer readings.

A schematic diagram of the apparatus and connections is shown in figure 2. It will be apparent that the height of the manometer column, and hence the pressure in the entire system, can be adjusted to any desired point by the hand wheel which operates the metal bellows.

From the Department of Research, New York Eye and Ear Infirmary.

Aided by grants from the Snyder Ophthalmic Foundation, Alfred P. Sloan, Jr., and the Ophthalmological Foundation.

Presented as a *New Instrument* at the Fifty-Sixth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 14-19, 1951, Chicago, Ill.

FIG. 2—Schematic diagram of the apparatus and fluid connections.

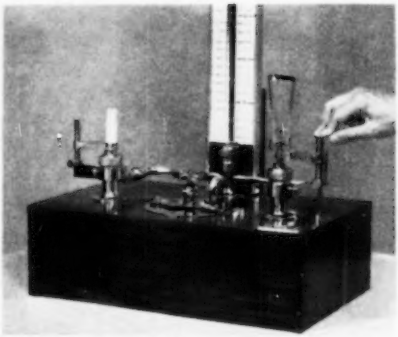


FIG. 3—Comparison Manometer. Operator is bringing footplate of the Schiötz tonometer into contact with the test drum.

A clamp holds the tonometer securely and correctly with respect to the rubber test "drum" (fig. 3). Provision is made for vertical movement of the clamp. The spring elevates the clamp so that the foot plate of the tonometer is only in contact with the rubber "drum" when compressed by the operator. The rubber test "drum" is one-half inch in diameter and is held in place in the manner commonly used, except that the holder has a raised rim. This rim makes a shallow well to retain a few drops of water for lubricating the surface of the rubber.

Findings

In our first tests, with an Ocular Hypertension Indicator on one test unit and a new certified Schiötz tonometer on the other, we found uniform movement and no evidence of friction in the Ocular Hypertension Indicator. However, the Schiötz tonometer pointer frequently remained stationary during an increase of manometer pressure ranging from 5 to 10 mm. of mercury.

We shall have to test a great many more Schiötz tonometers to accumulate an adequate statistical base for final evaluation, but the number of certified tonometers believed to be reliable and found to have a seriously misleading degree of friction made us feel that our present findings should be reported to you at this time.

Uses

Our experience with the apparatus and the comments and suggestions of ophthalmologists who have used it suggest that the instrument may be useful in several applications:

1. Checking tonometers for friction, particularly when several tonometers are being used on an individual patient.
2. Instruction of students in tonometry.
3. As a means of demonstrating the unreliability of the fingertip method of estimating ocular tension.

The person conducting the test adjusts the manometer to a number of different pressures. At each pressure the stopcock is closed. Without looking at the scale, the doctor being tested puts his fingertip on the rubber "drum" and estimates the pressure. Each manometric pressure and the doctor's corresponding estimate are recorded. The test measures the ability to discriminate between degrees of pressure.

REFERENCE

1. Berens, Conrad and Tolman, Charles: An ocular hypertension indicator (tonometer), J.A.M.A., 142:1360 (April 29) 1950.

TRANSACTIONS
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Highlights of the Fifty-Seventh Annual Meeting

Scientific programs of unusual interest, instructional courses by the foremost teachers of our medical schools, technical and scientific exhibits of the latest developments in clinical medicine and medical research, office and hospital equipment and appurtenances, all combined under one roof, provided a week of intellectual feasting during the fifty-seventh annual meeting of the Academy in Chicago, October 12 to 17, 1952.

Celebrating the production of the Atlases of Ophthalmic Pathology and Otolaryngic Pathology, the Academy was pleased to welcome the appearance of officers and staff of the Armed Services Institute of Pathology of Washington, D. C., and the chiefs of the editorial committees of the respective volumes. Forty years ago the Academy Council began discussions on the founding of a laboratory for processing pathologic specimens as a public diagnosing service for ophthalmologists and otolaryngologists. Plans for financial support of such an institution were laid and dues from the Academy members were specifically allotted for the purpose of providing suitable pathologic assistance.

Thirty-one years ago the Army Medical Museum joined in the efforts of the Academy to provide diagnostic assistance to ophthalmologists, and five years later to otolaryngologists. A tumor registry for eye, ear, nose and throat was subsequently established, and then in 1938 the first editions of the Atlases appeared. The Academy is fully appreciative of the splendid contributions of the officers and staff of the Institute who have made the Atlases possible. President Robb and Dr. Plinn Morse, the guest speaker, led the ceremonial symposium in fitting addresses that clearly pointed out the necessity for pathology in the graduate curriculum.

Registration at the Academy meeting again broke all former records. More than 5,400 Fellows, guests, exhibitors and ladies were given badges. Attendance was indicated by the advance registration of more than 1,100 Fellows.

The Association of Orthoptic Technicians, in collaboration with the American Orthoptic Council, held their annual symposium on Tuesday evening. The subject was "Convergence Insufficiency." The entire symposium will ap-

pear in the third volume of the American Orthoptic Journal.

A program on Plastic Surgery on Tuesday evening was so enthusiastically received that a Council Committee on Plastic Surgery was established for the facilitation of future programs on this interesting new activity in the specialties.

The Jackson Memorial Lecture was given at the Scientific Section on Ophthalmology on Tuesday morning by Dr. David G. Cogan, Howe Laboratory of Ophthalmology, Harvard Medical School, and the Massachusetts Eye and Ear Infirmary, on the subject of "Congenital Ocular Apraxia." The Wherry Memorial Lecture was given by Dr. John R. Lindsay of the University of Chicago on Thursday afternoon on "Some Experimental Observations Bearing on Ménière's Disease." These two outstanding lectures will appear soon in the TRANSACTIONS.

HONOR KEYS

During the opening session on Monday morning, honor keys were presented by President Robb to the following Fellows for their contributions to the scientific and educational activities of the Academy: Drs. William Banks Anderson, Walter S. Atkinson, Paul Boeder, Frederick A. Figi, Leland G. Hunnicutt, S. Rodman Irvine, Samuel N. Key, Jr., Daniel B. Kirby, Frederic J. Pollock, Lyman G. Richards, Benjamin H. Shuster, Kenneth C. Swan, Phillips Thygeson, Frank Turchik, and Maynard C. Wheeler.

SCIENTIFIC EXHIBIT AWARDS

Ophthalmology — The first award went to Dr. C. C. Teng (by invitation) and Dr. Herbert M. Katzin of The Eye Bank for Sight Restoration, Inc., New York, for their exhibit on "Hole Formation in the Peripheral Retina." Dr. Frederick A. Figi and Dr. John B. Erich of the Mayo Clinic, Rochester, Minn., received the second award in this section for their exhibit on "Hemangiomas: Types and Methods of Treatment."

Otolaryngology — Dr. Harold F. Schuknecht and his co-exhibitor, Dr. Robert M. Appelman (by invitation), of the University of Chicago Clinics were granted the first award in the Otolaryngology Section for an exhibit dealing with "Carcinoma of the Paranasal Sinuses." The second award went to Dr. Olav E. Hallberg of the Mayo Clinic, Rochester, Minn., for his exhibit on "Nosebleed and Its Management." The third award was presented to Dr. Guy L. Boyden and his co-exhibitors, Drs. Lester T. Jones and Robert M. Hansen, of the University of Oregon Medical School, Portland, for an exhibit in two parts, "A. Surgical Treatment of Chronic Frontal Sinusitis by Use of Sewall Mucoperiosteal Flap" and "B. Intranasal Dacryocystorhinostomy."

Special commendation was given to the exhibit by Drs. Lyle M. Sellers and Ludwig A. Furgott on "The Phylogeny and Ontogeny of Otorhinolaryngology" and to the exhibit dealing with the Atlases of Otolaryngic Pathology and of Ophthalmic Pathology arranged by the American Registry of Pathology of the Armed Forces Institute of Pathology for their high instructional value.

SOCIAL FUNCTIONS

A reception held on Sunday evening in the Grand Ballroom honoring President and Mrs. James Milton Robb and the Academy Guest of Honor, Dr. Fletcher Woodward, and Mrs. Woodward, was attended by a host of admiring friends and guests, who greeted old friends and made many new acquaintances.

A breakfast for the Ladies Committee, tendered Monday morning by Mrs. Robb in her suite, set the pattern for hospitality that made the ladies' registration the largest ever. The Ladies Committee, under the splendid leadership of Mrs. George E. Shambaugh, Jr., was hostess to more than 1,200 women guests. The registration room was indeed a social center, a most attractive feature of the convention.

A number of Academy luncheons were held during the week, among them the Home Study Courses luncheon on Sunday, the Technical Exhibitors luncheon on Tuesday, the Faculty luncheon on Thursday, and the dinner for the Society of Eye, Ear, Nose and Throat Society Secretaries on Tuesday evening. This Society has now gone international, a phenomenal growth based on service.

SPECIAL SCIENTIFIC PROGRAMS

Otosclerosis Study Group

The Otosclerosis Study Group participated in two scientific sessions. On Saturday evening preceding the convention, the first of the two sessions followed the annual dinner meeting of the members. At this meeting Stacy R. Guild, Ph.D., discussed otosclerosis as a cause of cochlear nerve degeneration; Harold F. Schuknecht, M.D., spoke on "Experimentally Produced Perceptive Deafness"; and Julius Lempert, M.D., and Philip E. Meltzer, M.D., presented a paper on "The Evaluation of Technical Factors Introduced for the Improvement of Fenestration Surgery."

On Sunday evening the Otosclerosis Study Group in cooperation with the Committee on Conservation of Hearing conducted a panel discussion on organization of hearing programs at the state level.

Teachers' Sections

Considerable interest is manifested each year in the discussion of teaching problems. This year was no exception. The Otolaryngology Section heard papers by Dr. Frederick T. Hill and Dr. George E. Shambaugh, Jr., on "What Should the Clinical Otologist Do with Audiology?"; Dr. John A. Kirchner on "Full Time vs. Part Time Teaching in Otolaryngology"; and Dr. Albert C. Furstenberg on "Is a Rotating Internship Important Toward Interesting Physicians in Our Specialty?"

In the ophthalmological section the discussion aimed toward elucidating the role of special courses of study, particularly in the basic or fundamental subjects bearing on the specialty.

Industrial Ophthalmology

The Sunday evening program of the Joint Committee on Industrial Ophthalmology was well attended. Henry Imus, Ph.D., discussed "Visual Problems in Industry" and Jean S. Felton, M.D., described "The Eye Clinic at Oak Ridge National Laboratory."

The Annual Joint Committee Award was presented to Dr. Albert C. Snell, Sr., in absentia.

American Society of Ophthalmologic and Otolaryngologic Allergy

The American Society of Ophthalmologic and Otolaryngologic Allergy held a joint meeting with the Academy. On Friday morning and in the afternoon, papers were read on subjects related to allergy of the eye, ear, nose and throat. At the luncheon forum, Dr. French K. Hansel spoke on the subject of "Vascular Headaches and Related Phenomena."

OFFICERS

Dr. Frederick C. Cordes, Clinical Professor of Ophthalmology at the University of California Medical School in San Francisco, will become President of the Academy on January 1, 1953. Dr. Cordes became a Fellow in 1933 and was awarded the Academy honor key in 1947. He has contributed many hours on the Instruction Courses and is the author of the popular manual on Cataract Types.

Dr. John J. Shea of Memphis, Tennessee, was named President-Elect of the Academy at the annual business meeting. Dr. Shea has been a strong proponent of the educational program of the Academy since his admission to Fellowship in 1916, and he has given freely of his services in their behalf. In 1942 he was awarded the honor key of the Academy in appreciation of his efforts. Dr. Shea was elected Third Vice-President of the Academy in 1922, and in January 1929 began a four-year term on the Board of Councillors. He became a Life Fellow in 1946.

Other officers elected to serve in 1953 are: Dr. Thomas Galloway, Chicago, First Vice-President; Dr. Harvey Thorpe, Pittsburgh, Second Vice-President; Dr. Henry Orton, Newark, N. J., Third Vice-President; Dr. S. Rodman Irvine, Beverly Hills, Calif., Councillor.

Officers who were re-elected are: Dr. W. L. Benedict, Rochester, Minn., Executive Secretary-Treasurer and Editor-in-Chief of the TRANSACTIONS; Dr. Howard P. House, Los Angeles, Secretary for Otolaryngology; Dr. Kenneth L. Roper, Chicago, Secretary for Ophthalmology; Dr. Dean M. Lierle, Iowa City, Iowa, Secretary for Instruction in Otolaryngology and Maxillofacial Surgery; Dr. A. D. Ruedemann, Detroit, Secretary for Instruction in Ophthalmology; Dr. Lawrence R. Boies, Minneapolis, Secretary for Home Study Courses, and Dr. Erling W. Hansen, Minneapolis, Secretary for Public Relations.

CHICAGO — 1953

The 1953 meeting of the American Academy of Ophthalmology and Otolaryngology will be held at the Palmer House in Chicago, October 11 to 16, 1953.

In Memoriam

Frank Mears Adams.....Providence, Rhode Island
August 28, 1952

E. Frank Chase.....Seattle, Washington
August 4, 1952

David Ide.....New York, New York
July 17, 1952

Alonzo Bolen Middleton.....Clermont, Florida
September 21, 1952

Robert Lee Piercy.....Youngstown, Ohio
July 2, 1952

Alva Boyd Sowers.....Chicago, Illinois
August 31, 1952

Necrology

IN MEMORIAM

Paul Mitten Allis, Lewistown, Pa.
Malcolm P. Andrews, Manitowoc, Wis.
Harold Bailey, Charles City, Iowa
Albert Leonard Bass, Louisville, Ky.
Nathan Blankfeld, Brooklyn, N.Y.
Ralph Edwin Boice, Toledo, Ohio
Clyde Olen Brown, St. Louis, Mo.
Earl Henderson Brown, Jr., Tucson, Ariz.
Seth Arthur Brumm, Pottsville, Pa.
Clair Aurelius Buck, Glen Falls, N. Y.
Joseph V. Clothier, Pocatello, Idaho
William Henry Crisp, Denver, Colo.
Louis Daily, Houston, Texas
Morgan Cryder Davies, Columbus, Ohio
Thomas W. Davis, Winston-Salem, N.C.
Linn Emerson, Orange, N.J.
Samuel Davidson Evans, Pittsburgh, Pa.
Charles Firestone, Seattle, Wash.
George Garthwaite Fisher, Newhall, Calif.
Harold Augustus Fletcher, Kentfield, Calif.
William Davis Gill, Dallas, Texas
Talbot John H. Gorrell, Chicago Heights, Ill.
Bernard Norman Gottlieb, Brooklyn, N.Y.
Herman Paul Grossman, Providence, R. I.
Louis Kaufman Guggenheim, Los Angeles, Calif.
Charles Armin Gundelach, St. Louis, Mo.
George Ricker Hageman, Longmont, Colo.
Frederick Smith Halsted, Denver, Colo.
William Porter Haney, Omaha, Neb.
Norman Darrell Harvey, Pelham, N.Y.
Marvin Fisher Jones, New York, N.Y.
William Aloysius Kennedy, St. Paul, Minn.
Edward Francis La Force, Burlington, Iowa
Walter Brackett Lancaster, Boston, Mass.
Hans Lauber, Salsburg, Austria
Melchiore Lombardo, Brooklyn, N. Y.
William Henry Luedde, St. Louis, Mo.
George Guerin Marshall, Rutland, Vt.
Hal Ellsworth Marshall, Witchita, Kan.
Malcolm Kelley McCullough, Dallas, Texas
H. Oliver McDiarmid, Brandon, Man., Canada
Carl Lenz McDonald, Cleveland, Ohio
Earle Sinclair McKey, Jr., Valdosta, Ga.
John Ambrose Monahan, Clinton, Mass.
William Daniel Morman, St. Louis, Mo.
Frederick McCullough Morrison, Lynchburg, Va.
Everett C. Moulton, Sr., Fort Smith, Ark.
William George Mussun, Cleveland, Ohio
Frederick Valle Overman, Tipton, Ind.
Walter Mudie Paton, Vancouver, B.C., Canada
Barton Edward Peden, Seattle, Wash.
Malcolm Chester Pfunder, Minneapolis, Minn.
William Wallace Ralston, Houston, Texas
Leo Henry Riesenbeck, Miami, Fla.
Roy Otis Riser, Park Ridge, Ill.
Jacob Rosenbaum, Montreal, Que., Canada
Delano Richmond Ryder, Barrington, R.I.
William Walter Sauer, Marietta, Ohio
James McMahon Schmidt, Carmel, N.Y.
Otto Victor Mackenty Schmidt, New York, N.Y.
Alfred Alexander Schwartz, New York, N.Y.
Richard Gordon Scobee, St. Louis, Mo.
William Lawrence Sheahan, New Haven, Conn.
Harry L. Stelle, Pittsburg, Kan.
Walter Davis Stevenson, Quincy, Ill.
George Haeberle Stine, Colorado Springs, Colo.
Karl Ludwig Stoll, Cincinnati, Ohio
William Sassaman Sutherland, Philadelphia, Pa.
Thomas Gooch Tickle, New York, N.Y.
Louisa Paine Tingley, Providence, R.I.
Stewart Mann Uhler, Allentown, Pa.
Helen Frances Upham, Asbury Park, N. J.
J. van der Hoeve, Leyden, Holland
Henry DeWitt Watson, Binghampton, N. Y.
Vivian Parley White, Salt Lake City, Utah
James Sharp Wilson, Canton, Ohio
Ralph Hueston Woods, LaSalle, Ill.
Stanley Gillum Zemer, Lincoln, Neb.

PAUL MITTEN ALLIS

Dr. Paul Mitten Allis died on August 10, 1952 at Lewistown, Pennsylvania. Dr. Allis was a Fellow of the American Academy of Ophthalmology and Otolaryngology and a specialist certified by the American Board of Otolaryngology.

Dr. Allis was born on April 6, 1891, at Wyalusing, Pennsylvannia, and received his medical degree from University of Pennsylvania School of Medicine, Philadelphia in 1913. He served as an intern at Germantown Dispensary and Hospital and at Children's Hospital in Phildelphia. At the time of his death he was on the surgical staff of Lewistown Hospital and F.W. Black Community Hospital.

Dr. Allis is survived by his wife, Mrs. Mary Thompson Allis.

MALCOLM P. ANDREWS

Dr. Malcolm P. Andrews, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, died July 29, 1952 at Manitowoc, Wisconsin.

Dr. Andrews was born in 1879 at Lebanon, Illinois, and received the degree of doctor of medicine from the University of Illinois College of Medicine in 1905 and practiced at Abbotsford and Beloit, Wisconsin, before entering the military service in World War I. In 1919 he began practicing in Manitowoc, Wisconsin, where he was a specialist in ophthalmology and otolaryngology until his death.

He was active in civic affairs of his community and was interested in literary achievements to the extent of publishing a book of poems in 1942. His membership in various medical organizations included the Rochester Surgeons Club, the Radiological Society of North America, Inc., and the Oto-Ophthalmic Society of Milwaukee.

Dr. Andrews is survived by his wife, Mrs. Mabel Downey Andrews, his son, Dr. Edson Andrews and three grandchildren.

HAROLD BAILEY

Dr. Harold Bailey was born December 29, 1874 in Somerset, England. He received his degree in medicine from Rush Medical College in 1897, and did postgraduate work at Rotunda Hospital, Dublin, Ireland in 1902, at the London Hospital in 1906, and at the University of Vienna in 1908. At the time of his death on March 9, 1952, he was practicing his specialty at Charles City, Iowa.

Dr. Bailey was certified by the American Board of Ophthalmology, was a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, Fellow of the American College of Surgeons and was affiliated with the Cedar Valley Hospital in Charles City.

He was the writer of a number of articles on surgery. His latest work "The Physiology of Thought" was published in 1950. Dr. Bailey is survived by a brother, a niece and three nephews.

ALBERT LEONARD BASS

Dr. Albert Leonard Bass died on July 18, 1951 at the age of 64, at Louisville, Kentucky. He received his medical degree from University of Louisville School of Medicine in 1912 and was a specialist certified by the American Board of Otolaryngology. He was a Senior Fellow of the American Academy of Ophthalmology and Otolaryngology and a Fellow of the American College of Surgeons.

Dr. Bass served his country during World War I and was formerly on the faculty of the University of Louisville School of Medicine. He was affiliated with Louisville General, Children's, Kosair Crippled Children, St. Anthony's, and Kentucky Baptist hospitals and Norton Memorial and St. Joseph infirmaries.

NATHAN BLANKFELD

Dr. Nathan Blankfeld, who was born March 9, 1901, received the degree in medicine from University and Bellevue Hospital Medical College, Brooklyn, New York in 1927. He did postgraduate work in Vienna following his graduation.

Dr. Blankfeld was a Fellow of the American College of Surgeons and of the American Academy of Ophthalmology and Otolaryngology, a member of the American Medical Association and was a specialist certified by the American Board of Otolaryngology.

At the time of his death on November 1, 1951, he was on the staffs of Kings County Hospital, St. Peter's Hospital, Samaritan Hospital and Midwood Hospital, Brooklyn, New York.

RALPH EDWIN BOICE

Dr. Ralph Edwin Boice, of Toledo, Ohio, a Fellow of the American Academy of Ophthalmology and Otolaryngology and of the American College of Surgeons, died on March 30, 1952 at the age of 56.

Dr. Boice received the degree of doctor of medicine from University of Michigan Medical School, Ann Arbor, in 1920. He was a specialist certified by the American Board of Ophthalmology and an instructor of ophthalmology from 1921 to 1922 and a senior instructor of ophthalmology from 1922 to 1923 at the University Hospitals, Ann Arbor, Michigan. He served as a medical advisor to the board of selective service for World War II.

Dr. Boice was affiliated with St. Vincent's and Toledo hospitals.

CLYDE OLEN BROWN

Dr. Clyde Olen Brown died on February 12, 1952 at the age of 62 at St. Louis, Missouri.

Dr. Brown was awarded the degree of doctor of medicine from National University of Arts and Sciences Medical Department, St Louis, in 1915. He was a Fellow of the American Academy of Ophthalmology and Otolaryngology and a specialist certified by the American Board of Otolaryngology. He was assistant professor of clinical otolaryngology at St. Louis University School of Medicine and was affiliated with Evangelical Deaconess Hospital, Jewish Hospital, St. Luke's Hospital, St. Mary's Infirmary and Bethesda General Hospital.

Dr. Brown is survived by his wife, Mrs. Hettie Frances Brown, and a daughter, Virginia.

EARL HENDERSON BROWN, JR.

Dr. Earl Henderson Brown, Jr., of Tucson, Arizona, died on June 8, 1952 at the age of 49.

Dr. Brown was graduated from University of Pennsylvania School of Medicine, Philadelphia in 1927 and was a specialist certified by the American Board of Otolaryngology. He was a Fellow of the American Academy of Ophthalmology and Otolaryngology and of the American College of Surgeons. He was affiliated with Tucson Medical Center, Pima County General Hospital and St. Mary's Hospital and Sanatorium.

SETH ARTHUR BRUMM

Dr. Seth Arthur Brumm, who was born February 27, 1882, died at Pottsville, Pennsylvania on February 21, 1952. He received a degree in medicine from the University of Pennsylvania in 1906, and was certified by the American Board of Otolaryngology in 1911.

Dr. Brumm held several appointments, among them instructor of otolaryngology at the University of Pennsylvania, chief in otolaryngology at St. Luke's and Children's Medical Center, and consultant at Misericordia Hospital.

He was a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, a member of the American Laryngological Association and the Philadelphia County Medical Society. He is survived by one sister.

CLAIR AURELIUS BUCK

Dr. Clair Aurelius Buck of Glen Falls, New York, was born September 9, 1899 at State Center, Iowa and received the degree in medicine from the University of Cincinnati College of Medicine in 1926. He did postgraduate work at the University of Pennsylvania from 1928 to 1929, at the University of Vienna in 1933 and at the University of Bordeaux in 1937.

At the time of his death on November 12, 1951, Dr. Buck was on the staffs of Christ Hospital and Children's Hospital as well as consultant at the Warren County Tuberculosis Sanatorium. He was a Fellow of the American Academy of Ophthalmology and Otolaryngology. He was very active in Masonic circles, and was a Major in the Medical Corps of the United States Air Force.

Dr. Buck is survived by his wife, his father, one brother and one sister.

JOSEPH V. CLOTHIER

Dr. Joseph V. Clothier, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, died in Encino, California on October 16, 1951 at the age of 72.

Having completed his medical education at the University of Pennsylvania School of Medicine, Philadelphia, in 1900, Dr. Clothier has practiced since in Pocatello, Idaho. He was a Fellow of the

American College of Surgeons, a member of the American Medical Association and was affiliated with Pocatello General Hospital.

WILLIAM HENRY CRISP

Dr. William Henry Crisp was born in London, England on October 4, 1875 and died at Denver, Colorado on October 16, 1951. Dr. Crisp received the degree of doctor of medicine at Denver and Gross College of Medicine in 1907 and did postgraduate work in ophthalmology at Denver and Gross College of medicine in 1909 and at the University of Colorado School of Medicine from 1910 to 1913. He was as instructor in ophthalmology at the University of Colorado School of Medicine from 1912 to 1928 and was on the staffs of Denver General Hospital, Childrens Hospital, Mercy Hospital and Presbyterian Hospital.

Dr. Crisp was a specialist certified by the American Board of Ophthalmology and was a Life Fellow of the American Academy of Ophthalmology and Otolaryngology. He was also a member of the American Ophthalmological Society and of the Association for Research in Ophthalmology, and a Fellow of the Royal College of Physicians and Surgeons of Canada and the American College of Surgeons.

He is well know for his editorial work, having been editor of **Colorado Medicine** from 1914 to 1919, a member of the editorial staff of the **Ophthalmic Year Book**, editor-in-chief of the **American Journal of Ophthalmology** from 1928 to 1931, and consulting editor of the **American Journal of Ophthalmology** until his death. He also was editor of the Abstract Department of the **American Journal of Ophthalmology** from 1931 to 1946. He had always given loyally of his time and effort to the educational program of the Academy.

Dr. Crisp is survived by his wife, Mrs. Katherine B. Crisp, his daughter, Mrs. Nancy Hartsfield and two grandsons. A brother and sister still reside in England.

LOUIS DAILY

Dr. Louis Daily of Houston, Texas, was born on July 18, 1884 and was educated at the University of Texas School of Medicine at Galveston receiving the degree of doctor of medicine in 1910. He did postgraduate work in Vienna and Berlin from 1921 to 1923. He was a specialist certified by the American Board of Otolaryngology and was a Senior Fellow of the American Academy of Ophthalmology and Otolaryngology and a Fellow of the American College of Surgeons.

During World War I, Dr. Daily served as a Lieutenant in the Medical Corps of the United States Navy. He was a clinical professor of otolaryngology at Baylor University College of Medicine at Houston, Texas, at the time of his death on January 29, 1952. He was also affiliated with the Jefferson Davis Hospital, the Memorial Hospital and the Methodist Hospital in Houston.

Dr. Daily is survived by his wife, Dr. Ray Karchmer Daily, and his son, Dr. Louis Daily, Jr., both of whom are ophthalmologists.

MORGAN CRYDER DAVIES

Dr. Morgan Cryder Davies died on May 26, 1952 at Columbus, Ohio, at the age of 56.

Dr. Davies was born at Delaware, Ohio, July 27, 1895 and was graduated with the degree of doctor of medicine from the Ohio State University College of Medicine in 1927 and did postgraduate work in ophthalmology in Vienna in 1930. His hospital appointments included eye surgeon at Ohio State Penitentiary from 1929 to 1934, chairman of ophthalmology at Childrens Hospital and member of the senior staff of the department of ophthalmology at White Cross Hospital.

He was a Fellow of the American Academy of Ophthalmology and Otolaryngology and of the American College of Surgeons and was active in the Masonic Lodge and the American Legion, as well as being a yachtsman and an interested participant in several yacht clubs.

He is survived by his wife, Mrs. Elizabeth Palmer Davies, and his daughter, Carolyn Jean.

THOMAS W. DAVIS

Dr. Thomas W. Davis was born in 1876 and died on June 3, 1952 in Winston-Salem, North Carolina. He was Senior

Fellow of the American Academy of Ophthalmology and Otolaryngology and a Fellow of the American College of Surgeons.

Dr. Davis received the degree of doctor of medicine from the Medical College of the State of South Carolina, Charleston, in 1898. He served his country during World War I and was affiliated with City Hospital.

LINN EMERSON

Dr. Linn Emerson, of Orange, New Jersey, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, was born in 1873 and passed away during the past year. Dr. Emerson received his medical degree from Jefferson Medical College of Philadelphia in 1897 and began his practice in 1901.

A specialist certified by the American Board of Ophthalmology and also by the American Board of Otolarynology, he preferred to practice Ophthalmology. He was a Fellow of the American College of Surgeons and a member of the American Laryngological, Rhinological and Otological Society.

SAMUEL DAVIDSON EVANS

Dr. Samuel Davidson Evans was born at Pittsburgh, Pennsylvania, on September 5, 1900 and died in the same city on June 2, 1952. He attended the Pittsburgh public schools and continued his medical education at the University of Pittsburgh School of Medicine receiving his degree in 1925. He studied at New York University from 1938 to 1939 and held a residency in ophthalmology at Bellevue Hospital in New York City from 1939 to 1941. At the time of his death he was on the senior staff of the Eye, Ear, Nose and Throat Hospital and the South Side Hospital as well as being an instructor of ophthalmology at the University of Pittsburgh School of Medicine.

Dr. Evans was a specialist certified by the American Board of Ophthalmology and was a Fellow of the American Academy of Ophthalmology and Otolaryngology and of the Association for Research in Ophthalmology. He is survived by three sisters and one brother.

CHARLES FIRESTONE

Dr. Charles Firestone, who died on January 18, 1952 in Seattle, Washington, was born on October 23, 1897 in Vienna, Austria. He received his medical degree in 1922 from New York University College of Medicine, New York, and was in charge of a government hospital in Juneau, Alaska until 1929. He did postgraduate study at the University of Vienna from 1929 to 1930. He was in private practice in Seattle in plastic surgery and ear, nose and throat diseases from 1931 to 1941, at which time he entered the service as a Lieutenant Colonel in the United States Army Air Forces where he served until 1946.

Dr. Firestone was a Fellow of the American Academy of Ophthalmology and Otolaryngology and a member of the American Medical Association, the American Medical Association of Vienna, and the AeroMedical Association of the United States. He was the author of several books on problems of nasal plastic surgery.

Mrs. Ada Claire Firestone, his wife, survives, as well as a daughter, Mrs. Albert Aley, and two granddaughters.

GEORGE GARTHWAITE FISHER

Dr. George Garthwaite Fisher of Newhall, California, died on September 7, 1952 at the age of 70.

Dr. Fisher had received his medical degree from Laval University Faculty of Medicine, Quebec, in 1906 and had been a consultant in otology, rhinology and laryngology at St. Catherine's Hospital and Coney Island Hospital. A Fellow of the American Academy of Ophthalmology and Otolaryngology and of the American College of Surgeons, Dr. Fisher was retired from active practice. He was a specialist certified by the American Board of Otolaryngology and a diplomate of the American Board of Otolaryngology.

Dr. Fisher is survived by his wife, Mrs. Jessie Scudder Fisher, five sons, Major George G. Fisher, Jr., Dr. Alfred J. Fisher, San Francisco, Dr. Charles B. Fisher, Grand Junction, Colorado, Robert M. Fisher, Newhall, California and William H. Fisher, San Francisco and one daughter, Mrs. Margaret E. Finn of Dallas, Texas.

HAROLD AUGUSTUS FLETCHER

Dr. Harold Augustus Fletcher was born on December 10, 1888 in Alpena, Michigan and died July 26, 1951 at Kentfield, California.

A Fellow of the American Academy of Ophthalmology and Otolaryngology,

Dr. Fletcher received his medical degree from Stanford University School of Medicine, San Francisco in 1916. He was a specialist certified by the American Board of Otolaryngology, a member of the American Laryngological, Rhinological and Otological Society, the American Otological Society, and the Pacific Coast Oto-Ophthalmological Society. He was past president of the San Francisco County Medical Society and of the San Francisco Chapter of the League of the Hard of Hearing.

Dr. Fletcher served in France during World War I. He was chairman of the California Procurement and Assignment Service during World War II.

Formerly associate clinical professor of surgery (otorhinolaryngology) at Stanford University School of Medicine, Dr. Fletcher was affiliated with the Stanford University Hospitals.

WILLIAM DAVIS GILL

Dr. William Davis Gill was born in Dallas, Texas, November 24, 1895. He received his medical degree from Vanderbilt University School of Medicine, Nashville, Tennessee, in 1917 and did postgraduate study at New York University from 1917 to 1918 and then served in the regular Army Medical Corps from 1919 to 1927. He received the French Medaille d'Honneur for services rendered in World War I and did postgraduate work at the University of Vienna while he was with the army. In 1927 he resigned from the army to enter private practice and set up the Gill Clinic in San Antonio, Texas, which specialized in eye, ear, nose and throat diseases.

Dr. Gill was a specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology. He was a diplomate of the American Laryngological, Rhinological and Otological Society, the American Board of Ophthalmology and the American Board of Otolaryngology. He was a Fellow of the American Academy of Ophthalmology and Otolaryngology and of the American College of Surgeons and a member of the American Laryngological Association and the Association for Research in Ophthalmology.

During 1948 and 1949, Dr. Gill was consultant to the Air Force School of Aviation Medicine at Randolph Field, Texas. He was very active in local and state medical societies serving as chairman of the San Antonio Board of Health, a member of the Bexar County Medical Society, State Medical Association of Texas, Southern Medical Association, and the Texas Ophthalmological and Otolaryngological Society. He was on the staff of the Nix Memorial, Medical Arts and Santa Rosa hospitals.

Dr. Gill died on May 24, 1952 at the age of 56. He is survived by a daughter, Mrs. Charles D. Nicholas of Houston and two brothers, Dr. James P. Gill of San Antonio and Dr. E. King Gill of Corpus Christi.

TALBOT JOHN H. GORRELL

Dr. Talbot John H. Gorrell died on April 14, 1952 at Chicago Heights, Illinois at the age of 80. Dr. Gorrell had retired from active practice and spent much of his time at Coral Gables, Florida.

A Life Fellow of the American Academy of Ophthalmology and Otolaryngology, Dr. Gorrell had received his medical degree from University of Illinois College of Medicine, Chicago, in 1901 and was a member of the Illinois State Medical Society.

BERNARD NORMAN GOTTLIEB

Dr. Bernard Norman Gottlieb was born on February 8, 1900 in Brooklyn, New York, and died on January 30, 1952. Dr. Gottlieb received the degree of doctor of medicine from the Medical College of Virginia, Richmond, in 1925 and did postgraduate work at Columbia University, Temple University, the University of Pennsylvania and the University of Maryland. He was certified by the American Board of Otolaryngology and was a Fellow of the American Academy of Ophthalmology and Otolaryngology and of the International College of Surgeons.

His hospital appointments include, chief otolaryngologist at Ocean Hill Memorial Clinic, director of the ear, nose and throat section of Cumberland Hospital, associate otolaryngologist at Prospect Heights Hospital and a member of the staff of Maimonides Hospital.

Dr. Gottlieb is survived by his wife, Mrs. Helen Puklin Gottlieb, a daughter, Ann Shirley, his father, two sisters and two brothers.

HERMAN PAUL GROSSMAN

Dr. Herman Paul Grossman died on June 5, 1952 at Providence, Rhode Island. Dr. Grossman was born in 1900 and received his medical degree at Boston University School of Medicine in 1927.

A Fellow of the American Academy of Ophthalmology and Otolaryngology, Dr. Grossman was a specialist certified by the American Board of Ophthalmology. He was assistant surgeon at the Massachusetts Eye and Ear Infirmary and at Massachusetts General Hospital in Boston. He was visual surgeon at Rhode Island Hospital, chief surgeon in ophthalmology at Charles V. Chapin Hospital and Miriam Hospital and an instructor in ophthalmology at Harvard Medical School.

Dr. Grossman is survived by his wife, Mrs. Edna Grossman, and two daughters, Edith and Betty Grossman.

LOUIS KAUFMAN GUGGENHEIM

Dr. Louis Kaufman Guggenheim, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, was born March 3, 1884, in Cincinnati, Ohio and received his medical degree cum laude from Washington University School of Medicine, St. Louis, Missouri, in 1905. He did postgraduate work at St. Louis City Hospital and at the University of Vienna from 1906 to 1908, and in Berlin from 1908 to 1909. He then began his practice in St. Louis where he continued until 1936, when he moved to Los Angeles. He practiced otolaryngology in Los Angeles until 1950 when he entered the field of psychoanalysis which he continued until his death on March 13, 1952.

Dr. Guggenheim was a Fellow of the American College of Surgeons and a member of the American Laryngological, Rhinological and Otological Society and the American Otological Society, Incorporated, and he was a specialist certified by the American Board of Otolaryngology. He was Associate Professor of Otolaryngology at the University of Southern California, formerly Assistant Professor of Otolaryngology, Washington University School of Medicine, St. Louis and formerly Research Associate at the University of California at Los Angeles.

The author of three scientific books, "Otosclerosis," "Phylogenesis of the Ear," and "The Embryology of the Human Ear," Dr. Guggenheim presented his book "Phylogenesis of the Ear," to all the universities of the world. "The Embryology of the Human Ear" is currently being edited for posthumous publication.

Dr. Guggenheim is survived by his wife, Mrs. Eleanor Anita Guggenheim, a daughter, Mrs. Mary Ewalt, and a son, Dr. Paul Guggenheim.

CHARLES ARMIN GUNDELACH

Dr. Charles Armin Gundelach was born in 1883 and died June 21, 1952 at St. Louis, Missouri.

Dr. Gundelach received his medical degree from Washington University School of Medicine, St. Louis, in 1908 and was a specialist certified by the American Board of Otolaryngology. He was a Life Fellow of the American Academy of Ophthalmology and Otolaryngology and a Fellow of the American College of Surgeons. Dr. Gundelach was on the staff of St. Luke's Hospital in St. Louis.

GEORGE RICKER HAGEMAN

Dr. George Ricker Hageman who died on March 3, 1952 at the Presbyterian Hospital in Denver, Colorado, was born in Washington, Kansas, January 14, 1891. He was graduated from the University of Michigan Medical School at Ann Arbor, Michigan, in 1919 and served in the armed forces of World War I during his senior year. He practiced in Brooklyn, New York, where he was on the staff of of the Long Island College Hospital, before going to Longmont, Colorado in 1930.

Dr. Hageman was a specialist certified by the American Board of Otolaryngology, a Fellow of the American Academy of Ophthalmology and Otolaryngology and of the American College of Surgeons.

FREDERICK SMITH HALSTED

Dr. Frederick Smith Halsted of Denver, Colorado, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, died on May 1, 1952 at the age of 63.

Dr. Halsted received the degree of doctor of medicine from St. Louis University School of Medicine in 1913 and was affiliated with St. Joseph's and Children's hospitals.

His wife, Mrs. Ethyl Halsted, survives.

WILLIAM PORTER HANEY

Dr. William Porter Haney who was a Life Fellow of the American Academy of

Ophthalmology and Otolaryngology died July 19, 1951 at Omaha, Nebraska, where he had been born on February 5, 1877. He received his medical degree from Rush Medical College at Chicago in 1901.

Dr. Haney was also a Life Fellow of the American College of Surgeons and was a specialist certified by the American Board of Otolaryngology. He was assistant professor emeritus of otorhinology at the University of Nebraska College of Medicine at Omaha and was affiliated with Creighton Memorial St. Joseph's Hospital, St. Catherine's Hospital and the Bishop Clarkson Memorial Hospital. During World War I he was a captain in the United States medical corps.

One daughter, Mrs. Stanley M. Truhlsen, one son, W. P. Haney, Jr., and his wife survive.

NORMAN DARRELL HARVEY

Dr. Norman Darrell Harvey of Pelham, New York, who died on October 13, 1951 at New Rochelle, New York, was born July 31, 1865 at Halifax, Nova Scotia. He was a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, and of the American College of Surgeons, and a member of the New England Ophthalmological Society, the American Otological Society, Incorporated, and the New England Oto-Laryngological Society. He was a specialist certified by the American Board of Ophthalmology and also by the American Board of Otolaryngology.

For many years Dr. Harvey practiced at Providence, Rhode Island, where he was consulting surgeon at Providence Lying-In Hospital, Butler Hospital, Charles V. Chapin Hospital and at Newport Hospital at Newport, Rhode Island.

Dr. Harvey served with the Rhode Island National Guard and during the Spanish-American War he served as Surgeon General for Spanish war veterans after holding the rank of First Lieutenant and Assistant Surgeon.

MARVIN FISHER JONES

Dr. Marvin Fisher Jones was born in Spencer, New York, March 10, 1889 and died May 26, 1952 at New York City. He received his early education at Spencer and Ithaca, New York, and took his medical degree from the University of Buffalo School of Medicine in 1913. He studied otolaryngology at the New York Post Graduate Hospital and began the practice of medicine in 1918 in New York City.

Dr. Jones was a specialist certified by the American Board of Otolaryngology and was a Fellow of the American Academy of Ophthalmology and Otolaryngology and of the American College of Surgeons. He was a member of the American Laryngological Association, the American Laryngological, Rhinological and Otological Society, and the American Otological Society, Incorporated.

His great interest in resident teaching became apparent with the excellent program he set up at the Manhattan Eye, Ear and Throat Hospital in New York City. His program is now in operation. He inaugurated the Conservation of Hearing Clinic, and through the American Otological Society, established a research center for the investigation of cochlear function and the physiology of the inner ear. This produced the technic known as "aural barometry for the detection of stapedial fixation." When the fenestration operation became part of the otologist's field, he investigated the possibilities of this technic and introduced it to the Manhattan Eye, Ear and Throat Hospital.

Dr. Jones was a consultant at Fitkin Memorial Hospital, Neptune, N. J., Tioga County General Hospital, Waverly, N. Y., New York Hospital of New York, and United Hospital in Port Chester. Since 1936 he had been surgeon-director of the department of otolaryngology at Manhattan Eye, Ear and Throat Hospital.

During World War I, Dr. Jones served in France. He is survived by his wife, Mrs. Jessie Hill Jones, a daughter, Beatrice Clare Jones, and two sons, James McKernan Jones, and Robert Marvin Jones.

WILLIAM ALOYSIUS KENNEDY

Dr. William Aloysius Kennedy, a Fellow of the American Academy of Ophthalmology and Otolaryngology, was born in Minneapolis, Minnesota, August 1, 1893 and died in St. Paul on April 30, 1952. He received his medical degree from the University of Minnesota Medical School, Minneapolis, in 1918 and had practiced in St. Paul since that time.

Dr. Kennedy was a specialist certified by the American Board of Ophthalmology and was formerly secretary-treasurer of the Minnesota Academy of Ophthalmology and Otolaryngology. He was affiliated

with Children's Hospital, Gillette State Hospital and St. Joseph's Hospital in St. Paul.

He is survived by his wife, Mrs. Helen Kennedy, two daughters, Mary Frances and Mrs. J. Thomas Simonet, a sister, Mrs. Fred Huntington, and a brother, John.

WALTER BRACKETT LANCASTER

Dr. Walter Brackett Lancaster was born May 11, 1863 in Newton, Massachusetts, of Mayflower stock on both sides of the family. He entered Harvard at the age of 17, and received the following degrees during his academic career: Harvard, A.B. magna cum laude 1884; Harvard, M.D. 1889; Dartmouth, D.Sc. Honoris Causa 1939.

Following his graduation from Harvard Medical School, he went to Europe where he came under the influence of Professor Ludwig Mauthner, who was responsible, no doubt, for his life-long interest in refraction, motility, and neuro-ophthalmology. His urge to teach caused him to apply to Harvard Medical School in 1909 for permission to establish at the School a laboratory for Research in Physiological Optics.

Dr. Lancaster worked at the Boston City Hospital with Henry Williard Williams and O. F. Wadsworth from 1890 until 1900, and presented his first paper, "The Local Anesthetics Used in the Eyes," in the Medical and Surgical Reports, Boston City Hospital in 1896. It was shortly before this period (1884) that the anesthetic effect of cocaine was discovered by Dr. Carl Koller, and it is reported that Dr. Williams, the first Ophthalmic Surgeon to Boston City Hospital, was the first operator in America to use this new local anesthetic in cataract operations. Dr. Lancaster had the unique opportunity of seeing Dr. Williams operate before and after the advent of cocaine.

Dr. Lancaster joined a group of medical specialists during this period to form the Boston Polyclinic, where he gave courses in Clinical Ophthalmology, Refraction, and Ophthalmic Surgery — a novelty at that time. When, a short time later, graduate teaching was begun at Harvard Medical School, Dr. Lancaster became an Assistant in Ophthalmology.

Ill health, resulting from an undiagnosed chronic appendicitis, caused him to retire from active medical practice from 1901 until 1910. Following surgery his improvement in health was rapid and, as most of us can attest, he enjoyed a vigorous and active life until he passed away in his sleep on December 9, 1951.

Dr. Lancaster, with Dr. Edward Jackson, probably did more to establish the American Board of Ophthalmology than any other man. Interest in the establishment of a Board was aroused by a series of articles on improving the teaching of ophthalmology. One year Dr. Jackson would read a paper and Dr. Lancaster would discuss it. The following year Dr. Lancaster would read a paper and Dr. Jackson would discuss it. The result, in 1915 the three existing Societies all voted to set up a joint board of ophthalmic examinations. Dr. Lancaster was a member of this original Board and of the Committee on Examinations. He acted as secretary and drew up the plans for the examinations, which were adopted with little change and have been followed by most of the dozen or more specialty boards which have been formed since.

He held the position of Senior Ophthalmic Surgeon to the Boston City Hospital, later Senior Ophthalmic Surgeon to the Massachusetts Eye and Ear Infirmary and the Massachusetts General Hospital, and Consulting Ophthalmic Surgeon to these institutions until his death.

During his lifetime he was, at different periods, President of the American Board of Ophthalmology, the American Ophthalmological Society, the American Academy of Ophthalmology and Otolaryngology, the New England Ophthalmological Society, and Chairman of the Section on Ophthalmology of the American Medical Association.

He was a member of the Councils of the American Association for Research in Ophthalmology, American College of Surgeons, the Illuminating Engineering Society and of its Committee on Research; the Optical Society of America, and one of the editors of its Journal; a member of the National Conference on Nomenclature of Disease, a director of the National Society for the Prevention of Blindness, a member of the executive committee of the Advisory Board of Medical Specialties, a member of the American Association for the Advancement of Science.

He was instrumental in founding the Boston Nursery for Blind Babies, and was appointed its first Consultant. He was Chief of Staff of the Dartmouth Eye Institute from 1940 to 1942.

His military service in World War I was spent in research for the then newly organized Army Air Force.

In 1914, Dr. Lancaster was awarded the Ophthalmic Research Medal of the Section on Ophthalmology of the American Medical Association. He was recipient, in 1943, of the Leslie Dana Gold Medal and, in 1945, of the Lucien Howe Medal for his outstanding contributions to the prevention of blindness and the conservation of vision.

After a life of devotion to the improvement of the practice of ophthalmology in America, his crowning achievement, conceived at the age of 83, was the establishment in 1946 of what is now known as the Lancaster Courses in Ophthalmology. A short time before his death he completed his book on Refraction Motility and Optics, which will soon be available.

Dr. Lancaster resided at the Harvard Club of Boston since the death of his wife in 1945. He is survived by a daughter, Julia E. Lancaster, and two sisters, Mrs. Sydney Harwood and Mrs. William Bennett Carey, both of Boston.

EDWARD FRANCIS LA FORCE

Dr. Edward Francis La Force, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, died at Burlington, Iowa, on January 22, 1952, at the age of 78.

Dr. La Force was born at Agency City, Iowa, on November 5, 1873, and took his undergraduate work at the State University of Iowa. He received his medical degree from Rush Medical College, Chicago, in 1900 and began the practice of Medicine in Chicago in 1901. He was a specialist certified by the American Board of Otolaryngology. He served his country during World War I.

He was very fond of travel, loved to fish and was a collector of stamps and antique spectacles. His collection of spectacles was presented to the Armed Forces Institute of Pathology by his wife, Mrs. Edith F. La Force.

Dr. La Force is survived by his wife, one son, a grandson and one brother.

HANS LAUBER

Hans Sigismund Arthur Lauber was born on July 25, 1876 in Hottingen in the Canton of Zuric, Switzerland, of Austrian parents, Carl Emil Lauber, civil engineer, and Olga nee Baroness von Foelkersahm. He studied medicine in Marburg in Hesse (Germany) and in Vienna where he took his degree on May 9, 1901. As a student he was demonstrator at the Institute of Anatomy under professor Emil Zuckerkandl, and at that time published his first scientific writings. From 1901 to 1902 he worked as auxiliary doctor at the II Eye Clinic under professor Ernst Fuchs, and in 1902 he became secondary doctor and 1903 assistant to professor Isidor Schnabel at the I Eye Clinic of Vienna where he stayed for 11 years. After professor Schnabel's death (1908) Lauber, who meanwhile had become first assistant, was charged with the direction of the clinic and the holding of lectures as well as with the instruction of the young doctors for two years until the nomination of professor Friedrich Dimmer. He continued working under professor Dimmer until 1913.

His scientific work was interrupted by the First World War. As surgeon-major he first directed the Eye Department of the First Garrison Hospital of Vienna, then in 1916 he applied for a commission in the army out in battlefield, and served in various camp hospitals of the III Imperial Army at the Russian front, his wife and mother-in-law both working as nurses. In autumn 1918 he had to return to Vienna and worked until 1919 at the War Hospital Grinzing, then as leader of the Eye Departments of the Hospital of the Brothers of Charity (Monks Hospitallers) till 1922, of the Francis-Joseph-Hospital till 1925, and of the Emperor's Jubilee Hospital of the City of Vienna till 1931.

In 1922 Lauber was nominated extraordinary professor. After having received and declined various calls to other universities he finally followed an urgent invitation of the University of Warsaw (Poland). He newly equipped and completely reorganized the whole Eye Clinic there which hitherto had been in a deplorable state, and within the nine years of his professorship the Warsaw ophthal-

mological school gained considerable reputation.

After the establishing of the German "Generalgouvernement" the Warsaw University was closed and Lauber was called to Cracow to take over the direction of the vacant Eye Clinic there, and was nominated leader of the anti-trachoma campaign throughout Poland. In January 1945, during a week's visit he paid to his daughter in Vienna, his return to Cracow was frustrated by the sudden progress of the Russian army in Galicia. He lost everything he and his family possessed, settled again in Vienna, and began to refound his existence at the age of 69.

In 1948 he withdrew to Gallspach in Upper Austria and in 1951 to Unken in the mountains of Salzburg. From 1949 to 1950 he worked as consiliary oculist at the First Station Hospital of the American Forces in Linz. During the last years of his life he still was busy writing scientific articles and contributing abstracts of Austrian oculistic publications to the "Ophthalmic Literature" in London.

In 1911 he married Judith Reinitz, the daughter of a well-known Viennese gynecologist. She died in 1942 in Cracow. They had but one daughter.

Lauber was a member of the Medical Society of Vienna, German Ophthalmological Society, Polish Academy of Sciences, Ophthalmological societies of Great Britain, Italy, France and Poland, and of the International Committee for Medical Promotion and was an Honorary Fellow (1934) of the American Academy of Ophthalmology and Otolaryngology. He died in Salzburg on March 3, 1952.

Throughout his life Lauber has published scientific articles in different languages (more than 150) and several books on ophthalmology. His most prominent works are:

"Handbuch der arztlichen Berufsberatung," Vienna 1923, (an innovation at that time), "Die Erkrankungen des Glaskorpers," Berlin 1922, "Anatomie des Ciliarkorpers, der Aderhaut und des Glaskorpers," Berlin 1931, (these two are contributions to two issues of the Graefe-Seamisch "Handbook of entire ophthalmology") "Handbuch der mikroskopischen Anatomie des Menschen," the volume "Das Auge" (with Kolmer), Berlin 1936, "Das Gesichtsfeld," Vienna 1944, his last great work.

Two more books are written but not printed hitherto: a book on trachoma and a great atlas on ophthalmoscopy in red-free light (with text in six languages). The visual field was a special object of Lauber's study, he constructed a new kind of perimeter but he occupied himself with numerous other problems likewise, especially with tabic atrophy of the optic nerve (against which he developed an efficacious therapy of his own with his assistant Sobanski), and with ophthalmoscopy in red-free light. Lauber, H. M. Traquair and Luther C. Peter in 1929 were nominated by the international ophthalmological council to establish an international unification of perimetrical terms.

Lauber was a splendid organizer, an eminent lecturer and a clever operator. He was, moreover, an excellent teacher, his students and doctors learned much from him and he always animated them to scientific work. He loved his profession as nothing else and had a high conception of medical vocation. He was a polyhistor of extensive medical reading and extraordinary memory. During his lifetime he had educated generations of American oculists many of whom remained his devoted and faithful friends until the end of his life. He spoke and understood more than a dozen languages and greatly rejoiced in etymological research. He had uncommon faculties, was widely read in history, German and foreign literatures, classics and sciences. He was fond of journeys and had travelled much, was a fine connoisseur of art and buildings, having visited all important galleries of Europe, and particularly the Italian towns, since his youth. He had keen interest and delight in music, was a regular concert-goer and visitor of the opera, and played the violin well enough to have the pleasure of weekly evenings of classic chamber-music (mostly string quartets) in his house. He loved nature, was a valiant horseman, an elegant skater and an indefatigable walker, even in his old age, who had made many ascents in the Alps, and traversed numerous parts of Germany, Austria and Italy on foot enjoying the various beauties of landscape for which he had a deep understanding. He was a most amiable companion in society, endowed with much humour and spirit, and a brilliant teller of witty anecdotes. The fund of his character was grave discipline and absolute moral cour-

age, he was extremely strict towards himself and exacted much upon others. Irreproachable in his conduct, unostentatious in his tastes, modest in his appearance, but commanding and unrelenting in the interest of his patients and subordinates, he was a thoughtful chief and a reliable friend. Prejudices of any kind were unknown to him, narrow-mindedness made him impatient. He was tolerant in his views but unswerving in his principles and never submitted them to temporary advantages which in the turmoil of times augmented many of his difficulties, yet he lived them down by the integrity of his personality which gained him (almost) universal esteem. In spite of all the injustices and hardships he had suffered in the last years his ingrained optimism and positive outlook upon the world remained unshattered and he always believed in the good in humanity.

[Jutta Lauber]

MELCHIORE LOMBARDO

Dr. Melchiore Lombardo was born in Italy in 1875 and received his medical degree from Regia Universita di Napoli Facolta di Medicina e Chirurgia, Italy, in 1900. He practiced in Italy before coming to New York in 1904. He died in Brooklyn, New York, on February 10, 1952.

Dr. Lombardo was a Fellow of the American College of Surgeons, a Senior Fellow of the American Academy of Ophthalmology and Otolaryngology and was a specialist certified by the American Board of Ophthalmology. He was affiliated with Wyckoff and Brooklyn Eye and Ear hospitals, Cornell University Medical College and New York Eye and Ear Infirmary.

Two sons, Professor Charles B. Lombardo of the University of Connecticut, and Dr. Gianni G. Lombardo of New Haven, two daughters, Bart and Susan A., and his wife, Mrs. Vitalina Lombardo survive.

WILLIAM HENRY LUEDDE

Dr. William Henry Luedde was born in Warsaw, Illinois, August 13, 1876 and died on March 19, 1952 at St. Mary's Hospital, St. Louis, Mo. Dr. Luedde received a medical degree from St. Louis College of Physicians and Surgeons in 1899 and another degree from Washington University School of Medicine, St. Louis, in 1900.

He was distinguished service professor of ophthalmology and director emeritus of the department of ophthalmology at St. Louis University School of Medicine. At one time he was on the faculty of Washington University School of Medicine. He was a Life Fellow of the American Academy of Ophthalmology and Otolaryngology and a Fellow of the American College of Surgeons and a member of the American Ophthalmological Society and the Association for Research in Ophthalmology.

On June 19, 1933, Dr. Luedde was awarded the Leslie Dana Gold Medal by the National Society for the Prevention of Blindness, of which he had been a member of the advisory committee since 1919. He was the director of the prevention of blindness department of the Missouri Commission for the Blind from 1913 to 1926 and was active in developing the movement for saving sight in the state. He was a specialist certified by the American Board of Ophthalmology.

He was affiliated with Firmin Desloge Hospital, St. Mary's Hospital, St. Mary's Infirmary, Missouri Baptist Hospital, St. Louis City Hospital and St. John's Hospital all of St. Louis, and the U.S. Marine Hospital at Kirkwood, the Veterans Administration Hospital in Jefferson City as well as the St. Louis County Hospital in Clayton.

Dr. Luedde is survived by his wife and three sons.

GEORGE GUERIN MARSHALL

Dr. George Guerin Marshall died in Rutland, Vermont, March 1, 1952 at the age of 84. He received his medical degree from the University of Vermont, College of Medicine, Burlington in 1893 and had practiced in Wallingford, Vermont, before coming to Rutland in 1907, where he had practiced until two years before his death.

Dr. Marshall was a Senior Fellow of the American Academy of Ophthalmology and Otolaryngology and of the American College of Surgeons and was a member of American Medical Association and the Montreal Ophthalmic Society. He had contributed a number of articles to medical journals.

During World War I, he was chief of the eye, ear, nose and throat division of Ancon (now Gorgas) hospital in the Canal Zone. He was discharged in 1919 as a major.

Dr. Marshall was a specialist certified by the American Board of Ophthalmology and was formerly on the staff of Proctor Hospital in Proctor, Springfield Hospital in Springfield, and Rutland Hospital.

HAL ELLSWORTH MARSHALL

Dr. Hal Ellsworth Marshall was born November 11, 1896 at Elk City, Kansas and received his early education at Elk City and Independence, Kansas. He received the degree of A.B. from the University of Kansas and the degree of doctor of medicine from the University of Kansas School of Medicine, Lawrence-Kansas City, in 1925. He began his practice in Blackwell, Oklahoma in 1926, and in 1927 moved to Wichita where he remained until his death, June 15, 1952.

A Fellow of the American Academy of Ophthalmology and Otolaryngology, Dr. Marshall was a specialist certified by the American Board of Otolaryngology. He was past president of the Sedgwick County Medical Society and on the staff of St. Francis Hospital.

Dr. Marshall is survived by his wife, Mrs. Edna Marshall, one daughter, Mrs. William E. Daniels of Lawton, Oklahoma, and two sons, Hal, Jr., a medical student at the University of Kansas, and Richard, in the United States Air Force.

MALCOLM KELLEY McCULLOUGH

Dr. Malcolm Kelley McCullough was born September 21, 1895 at Brownwood, Texas and died on December 28, 1951 at Dallas. He received his degree in medicine from University of Texas School of Medicine, Galveston, in 1921 and did postgraduate work at the New York Eye and Ear Infirmary before coming to Dallas to practice. He was certified by the American Board of Ophthalmology and was a Fellow of the American Academy of Ophthalmology and Otolaryngology.

Dr. McCullough was assistant professor of ophthalmology at Southwestern Medical School of the University of Texas and attending ophthalmologist to Baylor, Parkland and Medical Arts hospitals.

Three brothers, John W. McCullough of Galveston, Dr. David McCullough of Kerrville, and William W. McCullough of Pittsburgh, Pennsylvania, and one sister, Mrs. Bert Hurlburt, survive.

H. OLIVER McDIARMID

Dr. H. Oliver McDiarmid, of Brandon, Manitoba, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, died on January 5, 1952 in Tampa, Florida where he had gone to spend the winter.

Dr. McDiarmid received his medical degree from University of Manitoba Faculty of Medicine, Winnipeg, in 1906 and was a specialist in ophthalmology and otolaryngology. He was a Fellow of the Royal College of Physicians and Surgeons of Canada.

CARL LENZ McDONALD

Dr. Carl Lenz McDonald, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, died in Cleveland, Ohio, on May 24, 1952 at the age of 66.

Dr. McDonald was past president of the Academy of Medicine of Cleveland, and served his country during World War II. He had received the degree of doctor of medicine from University of Wooster Medical Department, Cleveland, in 1908.

EARLE S. McKEY, JR.

Dr. Earle S. McKey, Jr., of Valdosta, Georgia, died on April 28, 1952, at the age of 43.

Dr. McKey was a Fellow of the American Academy of Ophthalmology and Otolaryngology and a specialist certified by the American Board of Ophthalmology. He had received his degree of doctor of medicine from Emory University School of Medicine, in 1936. He served during World War II.

JOHN AMBROSE MONAHAN

Dr. John Ambrose Monahan, of Clinton, Massachusetts, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, died on February 21, 1952 at the age of 73.

Dr. Monahan received his medical degree from Tufts College Medical School, Boston, in 1903. He had served as a member of the board of health and was associated with the Clinton Hospital of which he had been a trustee. Dr. Monahan was affiliated with Massachusetts Eye and Ear Infirmary in Boston, Memorial Hospital in Ayer, Leominster Hospital and Marlborough Hospital in Marlboro.

WILLIAM DANIEL MORMAN

Dr. William Daniel Morman was born December 20, 1903 at Augusta, Georgia, and received his early education at Augusta, and at Morehouse College, Atlanta,

Georgia. His medical degree was received at Howard University College of Medicine, Washington, D. C., in 1929. He began the practice of medicine in 1930.

Dr. Morman died October 9, 1951 at St. Louis, Missouri. He was a specialist certified by the American Board of Otolaryngology and a Fellow of the American Academy of Ophthalmology and Otolaryngology. He was an instructor in the department of otolaryngology at St. Louis University of Medicine and was affiliated with St. Mary's Infirmary, People's Hospital, and the Homer G. Phillips Hospital, where he died.

Mrs. Verneeda Morman, his wife, survives.

FREDERICH McCULLOCH MORRISON

Dr. Frederich McCulloch Morrison died July 23, 1951, at Lynchburg, Virginia at the age of 46 years. He was born July 30, 1904 at Lynchburg, and received his early education there and in Alexandria, Virginia. His medical degree was received from University of Virginia Department of Medicine, Charlottesville, in 1930. He did postgraduate work at the University of Pennsylvania Postgraduate School of Ophthalmology and began his practice in 1936 in Lynchburg.

Dr. Morrison was a Fellow of the American Academy of Ophthalmology and Otolaryngology and a specialist certified by the American Board of Ophthalmology. He was Honorary President of the Virginia Society of Ophthalmology and Otolaryngology in 1951 and served in the Medical Corps of the United States Naval Reserve during World War II. He was a diplomate of the American Board of Ophthalmology and a member of the American Ophthalmological Society.

Dr. Morrison is survived by his wife and three children.

EVERETT C. MOULTON, SR.

Dr. Everett C. Moulton, Sr. died at Fort Smith, Arkansas, January 19, 1952 at the age of 62 years. He received his medical degree from Northwestern University Medical School, Chicago, in 1914. He served in World War I, part of the time under Dr. Meyer Wiener at the Cape May, New Jersey, Eye Center. He began private practice of ophthalmology at Fort Smith with his father, Herbert Moulton, M.D., in 1919.

A Life Fellow of the American Academy of Ophthalmology and Otolaryngology, Dr. Moulton was a specialist certified by the American Board of Ophthalmology in 1922.

Dr. Moulton is survived by his wife, one daughter, and one son, Dr. Everett C. Moulton, Jr. who was in practice in ophthalmology with his father.

WILLIAM GEORGE MUSSUN

Dr. William George Mussun, a Senior Fellow of the American Academy of Ophthalmology and Otolaryngology, died on August 20 in Cleveland, Ohio, at the age of 70.

Dr. Mussun received the degree of doctor of medicine from University of Wooster Medical Department, Cleveland, in 1890 and specialized in otolaryngology. He was particularly interested in the subject of allergy and nutrition as it pertained to ear, nose and throat diseases, and was a Fellow in the American College of Surgeons.

Dr. Mussun is survived by his wife, Mrs. Ruth Hubbard Mussun, three sons, William, Jr., Harry, and Bruce and a daughter, Mrs. Ruth Mussun Tidd.

FREDERICK VAILE OVERMAN

Dr. Frederick Vaile Overman, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, was born in Tipton, Indiana, August 9, 1878, and died in the same city on September 11, 1951. He received the degree of doctor of medicine from Indiana Medical College, School of Medicine of Purdue University, Indianapolis in 1906, and did postgraduate work at the New York Post-Graduate Hospital and Polyclinic Hospital and also in Vienna in 1929.

Dr. Overman was certified by the American Board of Otolaryngology and was past president and secretary of the Indianapolis Society of Ophthalmology and Otolaryngology, as well as secretary of the Indiana Academy of Ophthalmology and Otolaryngology. He was active in Masonic groups.

His special interest was the subject of "The Vocal Mechanism" and he presented lectures before various groups of singers and public speakers, illustrating the vocal mechanism by slides. He served on the selective service board in World War II and was presented with a citation for "faithful and meritorious service."

Dr. Overman is survived by his wife, Mrs. Pauline Overman, and one son, Frederick V. Overman, Jr.

WALTER MUDIE PATON

Dr. Walter Mudie Paton was born in 1898 and died at Vancouver, British Columbia, December 18, 1951. He received the degree of bachelor of medicine in 1924, and the degree of doctor of medicine in 1930, both from University of Toronto Faculty of Medicine, Toronto. He also received the degree of master of science in otolaryngology from the University of Minnesota Medical School, Minneapolis, in 1930.

Dr. Paton was a Fellow of the American Academy of Ophthalmology and Otolaryngology and of the Royal College of Physicians and Surgeons of Canada and was a specialist certified by the American Board of Otolaryngology. He was a member of the Pacific Coast Oto-Ophthalmological Society. He is survived by his wife and two children, and one brother.

BARTON EDWARD PEDEN

Dr. Barton Edward Peden was born November 1, 1895 at Oceola, Missouri and died September 2, 1951 at Seattle, Washington. His medical education was completed at University of Oregon Medical School, Portland, in 1925 with a degree of doctor of medicine, followed later by postgraduate work at the University of Pennsylvania.

A Fellow of the American Academy of Ophthalmology and Otolaryngology, Dr. Peden was also a member of the Pacific Coast Oto-Ophthalmological Society and served for many years as secretary of the Puget Sound Academy of Ophthalmology and Otolaryngology. He served during World War I and was retired as Lieutenant Commander, Medical Corps, U. S. Naval Reserve. He was a specialist certified by the American Board of Otolaryngology. He was active in the Masonic lodge.

Dr. Peden is survived by his wife, Mrs. Cornelia Peden, and a son, David H. Peden, as well as two sisters.

MALCOLM CHESTER PFUNDER

Dr. Malcolm Chester Pfunder, certified by the National Board of Medical Examiners, and a specialist certified by the American Board of Otolaryngology, was born in Two Creeks, Wisconsin, January 19, 1888, and died in Minneapolis, Minnesota, January 23, 1952. He received his medical degree at Rush Medical College, Chicago, in 1920, and was a Fellow in ophthalmology at the Mayo Foundation from 1920 to 1922. Dr. Pfunder is also a Fellow of the American College of Surgeons and past president of the Hennepin County Medical Society and the Minnesota Academy of Ophthalmology and Otolaryngology.

Dr. Pfunder was formerly on the faculty of the University of Minnesota Medical School as clinical professor of ophthalmology, and was affiliated with Swedish, Lutheran Deaconess, Minneapolis General, and Fairview and Mount Sinai hospitals.

Survivors include his wife, Mrs. Edna Gilkey Pfunder, a daughter, Mrs. Curtis H. Carlson and a son, Malcolm G. Pfunder, all of Minneapolis.

WILLIAM WALLACE RALSTON

Dr. William Wallace Ralston, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, died at Houston, Texas, November 3, 1951 at the age of 76.

Dr. Ralston was born at Hempstead, Texas, June 8, 1875, received his medical degree from the University of Texas School of Medicine, Galveston, in 1899, did postgraduate work at the University of Vienna, and began his practice in Houston in 1900. He was a specialist certified by the American Board of Ophthalmology, and was a Fellow of the American College of Surgeons. As one of the founders of the Texas Society of Ophthalmology and Otolaryngology and also of the Houston Eye, Ear, and Throat Hospital, he fostered interest in his specialty. He served as president of the Texas Society of Ophthalmology and Otolaryngology and of the Harris County Medical Society, as councilor of the Ninth District of the State Medical Association of Texas, and was a member of the House of Delegates of the American Medical Association in 1920.

At the time of his death, Dr. Ralston was affiliated with Hermann Memorial, Methodist and Houston Eye, Ear, and Throat hospitals. He is survived by his wife and four sisters.

LEO HENRY RIESENBECK

Dr. Leo Henry Riesenbeck, a Fellow of the American Academy of Ophthalmol-

ogy and Otolaryngology, died on June 12, 1952 in Miami, Florida. He had received his medical degree from University of Cincinnati College of Medicine in 1932 and was certified by the American Board of Otolaryngology.

Dr. Riesenbeck is survived by his wife, Mrs. Josephine D. Riesenbeck.

ROY OTIS RISER

Dr. Roy Otis Riser died on January 3, 1952, at Park Ridge, Illinois, at the age of 45.

A Fellow in the American Academy of Ophthalmology and Otolaryngology, Dr. Riser was a specialist certified by the American Board of Ophthalmology, and a clinical associate professor of ophthalmology of the University of Illinois College of Medicine, Chicago, where he had received his medical degree in 1931. He was vice president of the Chicago Ophthalmological Society, a consultant in ophthalmology at St. Francis Hospital in Evanston, Illinois, and was affiliated with Children's Memorial and Research and Educational hospitals in Chicago.

JACOB ROSENBAUM

Dr. Jacob Rosenbaum, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, was born September 25, 1887 in Austria and came to Montreal in 1900, where he died April 26, 1952. He received his medical degree from McGill University Faculty of Medicine, Montreal in 1912, was appointed to the interne staff of the Royal Victoria Hospital from 1912 to 1915 and then to the attending staff, on which he served until his death.

He became Director of the Department of Ophthalmology of the Jewish General Hospital at the time of its formation in 1935. He served on the teaching staff of McGill University Faculty of Medicine, in ophthalmology, for many years, retiring as assistant professor in 1950. He was consultant in ophthalmology at the Mount Sinai Sanitorium, the Montreal Hebrew Orphans' Home and the Hebrew Consumptive Association.

Dr. Rosenbaum was one of the founding members of the Montreal Ophthalmological Society in 1919 and served as president of that organization in 1940 to 1941. He was a Fellow of the American College of Surgeons and of the Royal College of Physicians and Surgeons of Canada as well as a member of the Montreal Medico-Chirurgical Society, the Canadian Medical Association and the Canadian Ophthalmological Society.

Dr. Rosenbaum is survived by his wife, a daughter, Mrs. J. Lyons of Leeds, England, a son, Peter, a medical student at McGill University, and three grandchildren.

DELANO RICHMOND RYDER

Dr. Delano Richmond Ryder, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, died on December 19, 1951 in Barrington, Rhode Island, at the age of 78. Dr. Ryder practiced medicine in Fall River, Massachusetts, having received his medical degree from University of Vermont College of Medicine, Burlington, in 1904.

A Fellow of the American College of Surgeons, Dr. Ryder was a member of the New England Otolaryngological Society and was affiliated with the Truesdale Hospital.

WILLIAM WALTER SAUER

Dr. William Walter Sauer, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, died June 30, 1951, at Marietta, Ohio. He was born December 23, 1883, at Cincinnati and received his medical degree from Miami Medical College, Cincinnati, in 1905.

A specialist certified by the American Board of Otolaryngology, Dr. Sauer practiced in Marietta until 10 years ago when he retired because of ill health. He was a member of the Washington County Medical Society and the Ohio State Medical Association and was active in the Masonic lodge. During World War I, he served as a First Lieutenant in the Medical Corps.

Dr. Sauer was a member of the Presbyterian church and served as a director of the choir for a number of years. He was past president of the Rotary Club of Marietta.

He is survived by his wife, Mrs. Adah K. Sauer, and three sons, Dr. D. E. Sauer, and attorneys, W. D. Sauer and G. D. Sauer, and a daughter, Mrs. R. H. Koehl.

JAMES McMAHON SCHMIDT

Dr. James McMahon Schmidt was born May 31, 1892, at Chelsea, Michigan and received his preliminary education there.

He received the degree of doctor of medicine from University of Michigan Medical School, Ann Arbor, in 1919 and began practicing in Brooklyn, New York, in 1921.

A specialist certified by the American Board of Otolaryngology, Dr. Schmidt was a Fellow of the American Academy of Ophthalmology and Otolaryngology, the American Academy of Allergy and the American College of Surgeons. He was affiliated with John E. Jennings, Carson C. Peck Memorial and Brooklyn hospitals.

Dr. Sauer died May 18, 1952 at Carmel, New York. He is survived by his wife, Mrs. Gladys G. Schmidt, and a son, Gordon M. Schmidt.

OTTO VICTOR MACKENTY SCHMIDT

Dr. Otto V. Mackenty Schmidt was born July 21, 1899 and received the degree of bachelor of arts from Laval University, Montreal, Quebec, in 1918. His medical education was received at McGill University Faculty of Medicine, Montreal, with the degree of doctor of medicine in 1922. He was house surgeon at the Royal Victoria Hospital, Montreal, from 1922 to 1924 and was a resident in Ear, Nose and Throat at the Manhattan Eye, Ear, Nose and Throat Hospital in New York City from 1925 to 1926. He had been an assistant surgeon in ear, nose and throat department of the Manhattan Eye, Ear, Nose and Throat Hospital from November 18, 1926 until his sudden death on January 15, 1952.

Dr. Schmidt was a specialist certified by the American Board of Otolaryngology and a Fellow of the American Academy of Ophthalmology and Otolaryngology and of the American College of Surgeons.

ALFRED ALEXANDER SCHWARTZ

Dr. Alfred Alexander Schwartz, a Fellow of the American Academy of Ophthalmology and Otolaryngology, was born January 18, 1891 in New York City. He received his education at Townshend Harris Hall and the College of the City of New York and secured his medical degree from Columbia University College of Physicians and Surgeons in 1912. He was a specialist certified by the American Board of Otolaryngology and was affiliated with Montefiore and Sydenham hospitals and was assistant otologist at Beth Israel Hospital Dispensary.

Dr. Schwartz was a member of the Eastern Medical Society of New York and the Medical Society of the County of New York. He died January 13, 1952 at the age of 60 years.

RICHARD GORDON SCOBEE

Orthoptics lost one of its great champions when Richard G. Scobee died suddenly of coronary occlusion on the evening of June 22, 1952.

Born in Sherman, Texas, on November 14, 1914, he spent much of his early life in El Paso, moving later to Houston, Texas. He completed his premedical work at Rice Institute in Houston, and received the A.B. degree from that school in 1935. He was graduated from the University of Texas Medical School in 1939, after which he served a rotating internship at the Methodist Hospital in Fort Worth, Texas. In July, 1940 he came to St. Louis for specialized training in ophthalmology at the Washington University School of Medicine and completed his residency training at Barnes Hospital in St. Louis in 1942. He was certificated by the American Board of Ophthalmology in 1943 while working as a full-time instructor in the Department of Ophthalmology of the Washington University Medical School. In January, 1944 he entered the Air Force, then a branch of the Army of the United States, and was assigned to the Department of Ophthalmology of the School of Aviation Medicine at Randolph Field, Texas. In September, 1945 he returned to St. Louis as Director of Graduate Training in Ophthalmology at Washington University School of Medicine, a position which he held at the time of his death. He was promoted to the rank of Assistant Professor in 1948.

Dr. Scobee's interest in ophthalmology began even before his medical school days and it was his constant goal throughout his school years to learn all there was to know about his specialty. During his internship, he became interested in obstetrics, and were it not for the fascination of his first love — ophthalmology — he might have become an obstetrician. We are thankful that this did not occur for we now realize how much he has contributed to ophthalmology, especially toward the solution of the many unsolved and mysterious problems in ocular motility.

Assignment to the School of Aviation Medicine at Randolph Field in early 1944 perhaps furnished the situation which was to stimulate his interest in the problems of ocular motility. There he was confronted with many problems concerning normal and abnormal muscle balance which needed immediate answers. In many instances, there were no good answers available so he set about to find them. That he often accomplished his goal is indicated by the many project reports published by the School of Aviation Medicine summarizing his work. The large number of reports indicates the enthusiasm and energy he always seemed to have. Fascination with ocular motility continued after his return to St. Louis in 1945 when he reorganized the "Muscle Clinic," a branch of the General Eye Clinic in the Washington University Clinics, which he supervised until his death.

He was instrumental in organizing the instruction courses for orthoptic technicians now held each fall in conjunction with the Academy meeting and the meeting of the American Association of Orthoptic Technicians. Also, he was in charge of the Summer Instruction Course given by the American Orthoptic Council, and was the first editor and guiding light of the American Orthoptic Journal.

Dr. Scobee is survived by his wife, his children, and his parents.

All who knew him will revere his memory and miss the stimulus of his presence. His was a life that ended too soon.

[David W. Freeman, M.D.]

WILLIAM LAWRENCE SHEAHAN

Dr. William Lawrence Sheahan, a Senior Fellow of the American Academy of Ophthalmology and Otolaryngology, died in New Haven, Connecticut on December 16, 1951 at the age of 64 years. Dr. Sheahan received his early education in the New Haven public school, Booth Preparatory school and the University of Maryland and continued his medical education and received his degree from the College of Physicians and Surgeons of Baltimore in 1912. He took his intern work at Providence Hospital, Detroit, Michigan and at St. Raphael's Hospital, New Haven. Later he entered specialty work at the Manhattan Eye, Ear, Nose and Throat Hospital in New York City where he served as resident house surgeon, finishing there in 1926. He then entered practice at New Haven.

A Fellow of the American College of Surgeons, Dr. Sheahan was a specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology. He was a member of the Association for Research in Ophthalmology, the American Medical Association and the New Haven Medical Association.

Dr. Sheahan served as a Major in the Medical Reserve Corps in France with the American Expeditionary Forces in 1918 and 1919 of World War I and at the New Haven Induction Center in World War II. He was interested in research and worked in clinics and hospitals in London, Edinburgh, Glasgow, Paris and Lyons, France, and in Belfast and Dublin, Ireland as well as in Montreal, Quebec.

Formerly clinical instructor of ophthalmology at Yale University School of Medicine, Dr. Sheahan served on the staffs of St. Raphael's Hospital, Grace Hospital, and New Haven Hospital, New Haven. He was an assistant ophthalmologist at Grace Hospital.

Dr. Sheahan is survived by a brother, Walter M. Sheahan, and two sisters, Mrs. James S. Burnes of New Haven, and Mrs. William E. Dolan of Ridgewood, New Jersey.

HARRY L. STELLE

Dr. Harry L. Stelle was born June 17, 1872 in Wheeling, West Virginia, and completed his medical education at Beaumont Hospital Medical College, St. Louis, Missouri in 1896. Immediately after receiving his degree, Dr. Stelle went into service in Indian Territory in what is now Oklahoma. After working with the Indians he went to Montana before going to Pittsburg, Kansas. He kept up a general practice until 1918 and then went into the specialized field of eye, ear, nose and throat ailments. However, he still maintained a sizeable general practice and was at his office regularly until less than a year before his death. He was licensed to practice in Kansas in May, 1905 and had been in Pittsburg since.

A Fellow of the American Academy of Ophthalmology and Otolaryngology, Dr. Stelle was also a member of the Kansas City Society of Ophthalmology and Otolaryngology. He was active in local organizations as the Masonic lodge, Elks and Rotary Clubs.

Dr. Stelle who died August 30, 1952, at the age of 80 is survived by his wife, Mrs. Katharine Stelle.

WALTER DAVIS STEVENSON

Dr. Walter Davis Stevenson, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, was born in Baltimore, October 28, 1883. He received his medical degree from Baltimore Medical College in 1906, and was a specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology. He was a Fellow of the American College of Surgeons and also of the International College of Surgeons.

Dr. Stevenson practiced in Quincy, Illinois since 1914 and was the first president in 1935 of the Mississippi Valley Society of which he was a charter member, president of the board of trustees and a member of the advisory committee. This Society awarded him its 1942 Distinguished Service Award. He was past president and secretary of Adams County Medical Society and was oculist for the Chicago, Burlington, and Quincy Railroad. During World War I he served overseas and was chief ophthalmologist for the American Expeditionary Force Base Hospital 54; and was visiting eye surgeon at various mission hospitals in India in 1937 and 1938.

For many years Dr. Stevenson was on the editorial board of the **Mississippi Valley Medical Journal** and was formerly editor of the **Quincy Medical Bulletin.**

Dr. Stevenson died October 26, 1951 at the age of 67. He is survived by his wife, a son, Dr. Walter Davis Stevenson, Jr., who is a practicing ophthalmologist, and two daughters, Mrs. Dorothy Russell and Mrs. Hugh Black.

GEORGE HAEBERLE STINE

Dr. George Haeberle Stine was born September 13, 1897, in Niagara Falls, New York and died on April 9, 1952 in Colorado Springs, Colorado.

He was graduated from Cornell University in 1919 and awarded the medical degree by the University of Buffalo School of Medicine in 1923. His internship at Buffalo General Hospital, Buffalo, New York, was not completed because of pulmonary tuberculosis. He received, from the Graduate School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, in 1929, the degree of M.Sc. (Ophth.), extramurally, Denver, Colorado, Dr. Edward Jackson, preceptor. He began the practice of ophthalmology in Colorado Springs, Colorado in July, 1929. He was a specialist certified by the American Board of Ophthalmology in 1932.

Dr. Stine had been graduate lecturer to the American Academy of Ophthalmology and Otolaryngology since 1938 and on the faculty of the Seaton School of Nursing since 1932. He was also honorary professor of ophthalmology, University of Colorado. At the time of his death, he was ophthalmologist to the Colorado State School for the Deaf and Blind, the Myron Stratton Home and the Union Printers Home, Colorado Springs, Colorado. He was a staff member of Glockner-Penrose, Memorial and St. Francis hospitals, Colorado Springs, Colorado.

Among his many contributions to medical literature are numerous articles on the subject of retinal detachment. In January, 1952, he had completed a comprehensive thesis addressed to the American Association of Ophthalmology, on all phases of retinal detachment, a subject to which he devoted years of study and research.

A Fellow of the American Academy of Ophthalmology and Otolaryngology, and of the International College of Surgeons, Dr. Stine was a member of the American Association for the Advancement of Science, the Association for Research in Ophthalmology as well as many local and state medical organizations.

In spite of his extremely full professional, civic and home life, Dr. Stine found time to do research not only in his specialty, but also in a totally different science, meteorology. He maintained a complete weather reporting station in his home and until 1942 was the only local weather forecaster.

Surviving him are his wife, Mrs. Laurie L. Stine, a daughter, Mrs. Barbara S. Gates, Denver, Colorado, and a son, George Harry Stine, Colorado Springs.

KARL LUDWIG STOLL

Dr. Karl Ludwig Stoll received his medical degree from Ludwig-Maximilians-Universitat Medizinische Fakultat, Munchen, Bavaria, in 1900. A Fellow of the American Academy of Ophthalmology and Otolaryngology, Dr. Stoll was on the staff of the General Hospital and Deaconess Hospital, Cincinnati, Ohio, where he died December 17, 1951, at the age of 76.

WILLIAM SASSAMAN SUTHERLAND

Dr. William Sassaman Sutherland was born September 1, 1896 in Philadelphia, Pennsylvania and died March 14, 1952 in the same city.

A Fellow of the American Academy of Ophthalmology and Otolaryngology, Dr. Sutherland was a specialist certified by the American Board of Ophthalmology and a clinical professor of ophthalmology at the Hahnemann Medical College and Hospital of Philadelphia where he had received his medical degree in 1923.

During World War I, Dr. Sutherland served his country and again during World War II he was a medical examiner for the selective service.

Dr. Sutherland is survived by his wife, Mrs. Gertrude A. Sutherland.

THOMAS GOOCH TICKLE

Dr. Thomas Gooch Tickle died April 26, 1952 in New York City following a long illness. He was born in Bluefield, West Virginia, on January 29, 1891 and after attending local schools, was graduated from University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, in 1916. In World War I, he served in France with the American Expeditionary Forces, attaining the rank of Captain in the Medical Corps. Following his return to Bluefield, he was connected with St. Luke's Hospital until 1926, when he went to New York Eye and Ear Infirmary.

In 1929 he became associated with the late Dr. Arthur B. Duel of New York and participated with him and the late Sir Charles Ballance of London in the research carried on in the surgical treatment of facial paralysis. Following the deaths of Dr. Duel and Sir Charles in 1936, he was called to London, England, to perform a facial nerve operation and to lecture upon and demonstrate the technic of the Duel-Ballance operation.

In 1938, Dr. Tickle wrote the chapter, "The Surgical Treatment of Facial Paralysis," for **Nelson's Loose-Leaf Surgery of the Ear,** and in 1948 "The Repair of Facial Paralysis of Otitic Origin," for **The Surgical Clinics of North America.** Throughout his career, he not only lectured and demonstrated this operation but he contributed much to the literature.

A Fellow of the American Academy of Ophthalmology and Otolaryngology, a Diplomate of the American Board of Otolaryngology, a Fellow of the New York Academy, Dr. Tickle was a specialist certified by the American Board of Otolaryngology. He was a member of the American Society of Plastic and Reconstructive Surgery and past president of the New York Otological Society.

He was an attending surgeon at the Manhattan Eye, Ear, Nose and Throat Hospital, surgeon-in-chief of the Duel Memorial Facial Palsy Clinic, attending otolaryngologist in facial surgery at the New York Polyclinic Medical School and Hospital and consulting otolaryngologist at the French, St. Vincent's and Lutheran hospitals of New York City.

Dr. Tickle is survived by his wife, Mrs. Ruth Tickle and a sister, Miss Katherine Tickle.

LOUISA PAINE TINGLEY

Dr. Louisa Paine Tingley, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, died on July 16, 1952 in Providence, Rhode Island, where she was born June 14, 1869. She studied and traveled abroad from 1886 to 1889 and also from 1896 to 1897. She was a German tutor and instructor in private schools from 1889 to 1897 and then began the study of medicine receiving her medical degree from Tufts College Medical School, Boston, in 1901. She has been in practice in Boston and in Providence, Rhode Island from 1901 until the time of her death.

Dr. Tingley was ophthalmologist at New England Hospital for Women and Children in Boston from 1901 to 1910, ophthalmologist at New England Deaconess Hospital since 1901, and at the Massachusetts Women's Hospital since 1918. During World War I she served on the staff of the New England Deaconess Base Hospital.

A Fellow of the American College of Surgeons and a member of the New England Ophthalmological Society, Dr. Tingley contributed a number of articles to medical journals. She was also the author of "Some Highlights in the Biography of my Great, Great Grandfather, Caleb Fiske, M.D."

STEWART MANN UHLER

Dr. Stewart Mann Uhler of Allentown, Pennsylvania, died on June 30, 1952 in Johns Hopkins Hospital of Baltimore at the age of 73.

Dr. Uhler was a Fellow of the American Academy of Ophthalmology and Otolaryngology and of the American College of Surgeons. He was a specialist certified by the American Board of Otolaryngology. He was a graduate of Jefferson Medical College of Philadelphia in 1906 and did postgraduate work at Columbia University and for one year in Germany. He was chief of the ear, nose and throat department of Sacred Heart Hospital and consultant in surgery of eye, ear, nose and throat conditions of Quakertown Community Hospital of Quakertown.

HELEN FRANCES UPHAM

Dr. Helen Frances Upham, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, died February 3, 1952, in Asbury Park, New Jersey, at the age of 74. Dr. Upham received her medical degree from Woman's Medical College of Pennsylvania, Philadelphia, in 1903 and did postgraduate work in Pittsburgh under Dr. Chevalier Jackson.

Dr. Upham held a position in the outpatient department of Monmouth Memorial Hospital, Long Branch, New Jersey for thirty-five years. She was a member of the American Medical Association and the Medical Society of the State of New Jersey. She is survived by a brother, Prentice Upham.

J. VAN DER HOEVE

Professor Doctor J. van der Hoeve died at Leyden, Holland, on April 26, 1952. He was made an Honorary Fellow of the American Academy of Ophthalmology and Otolaryngology in 1921 and was formerly professor on the faculty of medicine at the University of Leyden.

HENRY DEWITT WATSON

Dr. Henry DeWitt Watson died on June 20, 1950, at Binghamton, New York where he had been a specialist in eye, ear, nose and throat diseases for forty years. He received the degree of doctor of medicine from New York University Medical College, New York, in 1896 after study at Cornell University and the University of Michigan. Dr. Watson did postgraduate study at the University of Chicago, New York University and Johns Hopkins University. He also studied and did research work in the Prince of Wales Hospital and the Royal Ophthalmic Institute in London, and did laboratory work in Berlin and Vienna.

A Life Fellow of the American Academy of Ophthalmology and Otolaryngology, Dr. Watson was also a member of the Binghamton Academy of Medicine, the New York State Medical Society, the American Medical Association and the American Medical Association of Vienna. He first practiced medicine in Ludlowville, later opened an office in Cincinnatus and in 1909 moved to Binghamton where he practiced until the time of his death.

During World War I, Dr. Watson was a member of a citizens advisory board which had charge of the examination of men for military service in 1917 and 1918.

Dr. Watson had a number of interesting hobbies. He was an art collector and over the years had built up several valuable collections. He was affiliated with many foreign art collectors' societies. He contributed to hobby publications and wrote poems, several of which have been published.

Dr. Watson is survived by his wife, Mrs. RosaBelle Maricle Watson, a daughter, Mrs. Wells Howland, two nieces and a nephew.

VIVIAN PARLEY WHITE

Dr. Vivian Parley White was born September 12, 1896 in Salt Lake City, Utah and received his early education at Latter-Day Saints' College and the University of Utah, being awarded the degree of bachelor of arts. His medical training was taken at Harvard Medical School, Boston, from which he was graduated in 1923. His postgraduate study was done at the University of Vienna, University of Budapest, and Moga Hospital in Punjah, India. He began the practice of medicine at Salt Lake City in 1925.

A Fellow of the American Academy of Ophthalmology and Otolaryngology, Dr. White was a specialist certified by the American Board of Otolaryngology, and a member of the Pacific Coast Oto-Ophthalmological Society of which he had been vice-president. He was past president of the Utah State Ophthalmological Society and a clinical lecturer in surgery (otolaryngology) at the University of Utah College of Medicine where he had been instructor in anatomy of the head and neck from 1925 to 1927. He was affiliated with Salt Lake County General Hospital and Dr. W. H. Groves Latter-Day Saints Hospital where he died May 13, 1952.

Dr. White is survived by his parents, Mr. and Mrs. J. Parley White, his wife, Mrs. Laura McDonald White, two sons, Vivian Parley White, Jr., and Dr. Orson W. White, a brother, Dr. Leslie B. White, and a granddaughter.

JAMES SHARP WILSON

Dr. James Sharp Wilson of Canton, Ohio, died on June 29, 1952 at the age of 58.

Dr. Wilson received his medical degree from University of Pennsylvania School of Medicine, Philadelphia in 1918 and was a past president of the Stark County Medical Society. He was a Fellow of the American Academy of Ophthalmology and Otolaryngology and a specialist certified by the American Board of Otolaryngology. He was a member of the senior staff in otolaryngology at Aultman Hospital at Canton.

RALPH HUESTON WOODS

Dr. Ralph Hueston Woods, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, died on October 16, 1951 at LaSalle, Illinois.

Born January 29, 1876 at Quincy, Michigan, Dr. Woods received his early education at Quincy and at Ada, Ohio receiving a degree in pharmacy in 1897. He studied medicine at University of Illinois College of Medicine, Chicago, and was awarded the degree of doctor of medicine in 1913. He began to practice medicine in LaSalle, Illinois on March 15, 1915.

He was an instructor in ophthalmology at St. Mary's Hospital, LaSalle, and an associate member of the staff of the Illinois Eye and Ear Infirmary, Chicago, Illinois.

Dr. Woods is survived by his wife, Mrs. Laura C. Woods, and two daughters, Mrs. Wayne C. Hoelle and Mrs. Milburn Rimmele.

STANLEY GILLUM ZEMER

Dr. Stanley Gillum Zemer, a Life Fellow of the American Academy of Ophthalmology and Otolaryngology, died on October 15, 1951 at Lincoln, Nebraska. He was born February 19, 1883 at Lockport, Ohio.

Preliminary education at Ohio State University and the University of Chicago resulted in the degree of bachelor of science from the University of Chicago. Dr. Zemer then went on to continue his medical education and received his degree of doctor of medicine from Rush Medical College, Chicago, in 1913. He began the practice of medicine in 1913 at Silver City, New Mexico and moved to Lincoln in 1915.

During World War I, Dr. Zemer was a First Lieutenant in the Medical Corps. He was past president of the Lancaster County Medical Society and active in Masonic circles. He was affiliated with St. Elizabeth's Lincoln General and Bryan Memorial hospitals.

Dr. Zemer is survived by his wife, Mrs. Virginia Rogers Zemer, a son, Dr. Stanley Rogers Zemer of Milwaukee, and two daughters, Mrs. Margaret Hildebrand of Lincoln, Nebraska, and Mrs. Barbara Golan of Chicago.

HEARING LOSS IN PRESCHOOL CHILDREN: A GUIDE FOR DIAGNOSIS AND TREATMENT

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THE OTOLARYNGOLOGIST should have a profound interest in and a keen sympathy for the deafened child. Unless time can be spent to guide the parents in addition to offering medical and surgical service, the otolaryngologist should not be final in his advice to parents. The acceptance or rejection by the parent of the fact that a child's hearing is not normal is squarely the responsibility of the physician. To maintain the all-important professional contact with the patient, careful explanation to the parent in a way which will engender confidence and respect is paramount. Such advice should be given only after a careful evaluation of such facts as (1) previous advice and treatment, (2) emotional state of the parents, (3) a reliable evaluation of the child's hearing threshold, and (4) an evaluation of the patient's mental equipment to use his residual hearing. The child's hearing ability, not the extent of his deafness, should be the basis for encouraging parents to follow the proper course. Great care should be taken to avoid further distress to the child's family. Initiate a logical program of thought and action which will eventuate in the best that can be done with the child's hearing ability under the circumstances. Seldom will a doctor have such a fine opportunity to give important advice which will be needed for so long a time in the life of an individual as when he presumes to guide the parents of a child with impaired hearing.

There are several reason why it is important to be able to test the hearing of young children. When a child reaches the age of 24 to 30 months and has failed to learn to speak, the possibility of hearing loss should be investigated. If parents and teachers know whether a child's lack of speech is due to a hearing impairment and something concerning the extent of the child's loss, they can be guided in their efforts to stimulate his speech and social development.

Sometimes adults are concerned because of seeming inconsistencies in a child's behavior. He may respond to some sounds and not to others. If it is known, for example, that he had essentially normal hearing for low frequencies and very little if any hearing for the

Prepared by a Subcommittee of the Committee on Conservation of Hearing of the American Academy of Ophthalmology and Otolaryngology.

high frequencies, many of the inconsistencies in his behavior can be readily explained. Because of a lack of understanding by the parents, the child may receive unwarranted punishment. Another child may seem to be unreasonably aggressive in play situations; another, more timid, may withdraw, preferring to play alone. Each of these children should have his hearing carefully tested.

Such extremes in behavior are the means by which a child with impaired hearing expresses himself. The child does not understand what is said to him. He is not able to convey his thoughts to others. He expresses himself by aggressive or withdrawal behavior until he can be taught a socially acceptable means of communication.

For the past twenty years the pure tone audiometer has been the instrument of choice for the testing of hearing in patients over the age of six. In younger children conventional pure tone tests have proved to be unreliable in most instances. Most children do not develop the ability to respond meaningfully to pure tones until they are about six. Consequently, it has been necessary to devise hearing tests which are adapted to the interests and abilities of the very young child. One of the purposes of this manual is to present these test procedures.

HEARING IN NORMAL PRESCHOOL CHILDREN

Ewing and Ewing[2] studied the reactions of a group of preschool children enrolled in a nursery school in order to discover the kinds of noise that attract the attention of children with normal hearing of different age levels below the age of five years. They found that babies from one to three months of age responded by reflex movement to percussion sounds and to quiet voice. From the fourth to the sixth month, babies appear to respond first to quiet voice and then to percussion sounds. From the sixth to the twelfth month, the characteristic response is learned rather than reflex. At this age babies begin to localize sounds, respond to meaningful noises such as the clink of a nursing bottle, and to quiet voice. There was less evidence of a startle response than at an earlier age.

Between one and two years normally hearing children responded to speech. Whispered voice did not elicit a noticeable response. Children of this age tended to ignore percussion sounds, indicating that they were beginning to respond to sounds of learned importance. They had, by this age, a definite capacity for the localization of sounds. Reflex responses were rare.

In children from three to five years, the Ewings found that it was possible to use voice and whisper tests. Pure tone audiometry was not considered suitable because of the limited span of interest and attention which is normal in a child of this age.

Ewing and Ewing also observed a group of preschool children suspected of having a marked hearing loss. They found that if a child does not respond to voice at the end of the first year, he apparently has a profound hearing loss or one of the following: brain damage, aphasia, emotional disturbance or mental deficiency. Thus, the child must be suspected of having a hearing loss if he does not turn his head toward a familiar voice. It also seemed apparent that a moderate degree of hearing loss limited and delayed the process by which sounds became meaningful. Reflex responses to sound in children beyond the age of 12 months were observed more frequently in those with profound hearing loss than in children with normal hearing.

THE PRACTICAL TESTING OF THE PRESCHOOL CHILD WITH MODERATE HEARING LOSS AND SPEECH NORMAL FOR HIS AGE

History taking is important to all diagnosis in the field of medicine; otology is no exception. When a child is suspected of moderate hearing loss, the following details should be considered:

1. History
   a. Otorrhea
   b. Otalgia
2. Familial history of hearing loss
3. Social behavior
   a. Does the child frequently ask to have things repeated?
   b. Does he frequently ask "What?" when spoken to?
   c. Is he frequently irritable?
   d. Does he get on well with other children?
   e. Does he tend to prefer to play alone?
   f. Does he appear to hear at some times and not at others?
4. Speech history
   a. At what age did he begin to talk?
   b. Was this at about the same age that your older child began to talk?
   c. Did this child have any difficulty learning to talk?
   d. Is his vocabulary development comparable to that of your other children at his age?

In the preschool child, the tests that may be performed are limited in number and require a considerable amount of effort and interest on the part of the otolaryngologist. At the present time there are two tests of practical value. The simpler of these tests which deals with the speech threshold is one described by Keaster.[5] It is composed of 25 common monosyllables. As administered by Keaster, controlled speech amplification is used in two adjoining rooms. In one room is the speech amplifier and talk-back system; the second is a sound-conditioned room. An output attenuator makes it possible to vary the intensity level in 2 decibel steps over a 90 decibel range. The child is asked to carry out such directions as "Put the *rabbit* on the floor," or "Point to the *boat*." Or if that is too difficult, he is simply asked to point to each picture as the word is spoken by the examiner (fig. 1). In some instances toy objects are substituted for the pictures. The child may be asked to "Put the *ball* in the box," or "Put the *airplane* in the box." Rarely, if ever, is the child asked to repeat the word that he hears. Another such test employs a set of pictures representing spondee words such as cowboy, cup-cake, and hot-dog. The administration of the test is similar to that using the names of common objects.

Such speech tests have proved to be extremely useful in approximating a threshold of hearing for speech when a pure tone test cannot be used or when there is a desire to check the reliability of pure tone test results. The speech threshold thus obtained should approximate the pure tone average for 500, 1,000 and 2,000 cycles per second.

The average otolaryngologist may not be able to provide equipment as elaborate as this. For this reason, an effort is being made to provide a record suitable for speech testing in a single room.

The other type of test is more elaborate. One example is the "peep show."[1] Another is the "pediacumeter."[3] This kind of test meets two of the problems confronting the examiner who attempts to use pure tone audiometry with children from 3 to 5 years of age. First, the test is designed to hold the child's attention. Secondly, it objectifies the child's responses by means of a kind of conditioned reflex technic.

FIG. 1—Testing hearing with the speech audiometer.

THE PRACTICAL TESTING OF THE PRESCHOOL CHILD SUSPECTED OF HAVING A MARKED HEARING LOSS WHO IS WITHOUT INTELLIGIBLE SPEECH

First, obtain a history of the case. It should include: (1) any history of diseases suffered by the mother during pregnancy; (2) birth history, including Rh information; (3) history of illness during first years of life; and (4) familial history of deafness or other congenital abnormalities.

The parents should then be questioned concerning the child's early speech development:

1. Has he ever said any words? (Frequently the answer to this question is, "For a time he said, 'Mama,' 'Dada,' 'Bye-bye,' but after a while he stopped." If the examiner probes a bit, he frequently learns that the child wasn't actually saying words but only making babbling sounds interpreted as words by anxious parents.)

2. Did the child babble to himself as he played in his crib?

3. Has the babbling increased or decreased as he has grown older? The answer to this question is significant because at about the age of 12 months, the random babble of hearing children begins to take on definite form and meaning. If the child's babble began to lessen and finally almost ceased at about 18 months, it is a fairly positive sign of profound deafness.

The next set of questions concerns the child's response to sound:

1. Does he come when he is called at times when he is out of sight?

2. Is he interested in listening to the radio or television at a normal or loud output?

3. Is he attracted by the sound of an airplane?

4. Is he startled by the sound of the telephone or doorbell?

5. In what ways do you attract his attention when he is out of sight?

If the answers to these questions are for the most part negative and the parent feels that the child responds to vi-

bration such as the slamming of a door or the stamping of the foot on the floor, again the signs point pretty positively to profound deafness.

It is important that the person examining a deaf child know something of the child's social behavior:

1. How does he make his wants known?
2. Does he play well with other children?
3. Does he prefer to play alone?

If a child seems to play best alone, it may be that he has been frustrated in his attempts to convey his thoughts to others or to follow what they are trying to say to him.

Some things can best be learned about a child's behavior by observation rather than questions. For example: Does the child walk normally for his age? How does he handle play materials? Does he show independence in his actions? Answers to these questions frequently give the examiner a clue to the child's maturity. If he shows extreme immaturity, that may be a factor in the retardation of speech development.

After having obtained as complete a history as possible, the child must be given a physical examination with special attention to the ears, nose and throat. It is sometimes important that vestibular tests be given as part of the examination because they may yield information concerning the function of the inner ear.

Testing with Toy Noise Makers

Ewing and Ewing,[2] Utley[6] and others have described a means by which responses to environmental sounds may be tested in the office by means of toy noise makers. The child may be given a puzzle or any kind of toy that will absorb his interest. Sharp sounds are then introduced and his responses carefully noted. Drums, tom-toms, tambourines, pitch-pipes, horns, whistles, bells, etc., are used, which vary in pitch and loudness

FIG. 2.—Testing hearing with toy noise makers.

over a wide range. By means of this kind of observation the examiner knows, with a fair degree of accuracy, whether the child does or does not respond to loud sound. As a second step, the child may be seated at a table with the examiner seated directly across. A set of plastic blocks or any other kind of manipulative toy may serve as play material. The examiner may ring a bell, and as he does so he moves a block, rings the bell again and places the second block on top of the first one. Or instead of ringing the bell, the examiner may tap the drum and at the same time drop a marble into a hole in the top of a box. Soon the child realizes that he is to move the block or drop the marble in response to the sound that he sees the examiner make. Then the task is made more difficult. The examiner moves out of the child's line of vision. If he hears the sound, he may perform the motor manipulation (fig. 2). The stimuli must be presented at irregular intervals in order

FIG. 3.—Use of audiometer tones in place of toy noise makers.

that the child's responses do not fall into a rhythmic pattern. By moving away from the child, it is possible to get an approximate idea of the distance that he is able to hear the sound.

The test using toy noise makers is probably the most practical test that can be employed by the otolaryngologist in his office. But it should be borne in mind that it is necessary to collect one's own noise makers and to assess them properly from the standpoints of pitch and loudness. No such testing equipment is available, at the moment, in packaged form. Furthermore, the testing of a young child's hearing is very time consuming and requires extreme caution in not providing accessory clues such as visual or tactile stimuli. The otolaryngologist, therefore, sometimes delegates such testing to a properly trained assistant.

In some instances when the child being tested is more mature than the average, the technic employed with noise makers may be adapted for use with the pure tone audiometer. The child is taught to move a block or drop a marble into a hole in the box when he hears the sound (fig. 3). Care must be taken that the demonstrated sound is loud enough to be well above the child's threshold before the test proper is undertaken.

A more complicated test like the "peep show" can also be used in cases where profound loss is suspected.

TESTS USED IN HEARING CENTERS AND NOT SUITABLE FOR AN OFFICE

Psychogalvanic Skin-Resistance Audiometry[4]

By measuring changes in psychogalvanic response, it is usually possible to determine the thresholds of hearing for pure tones, even in very young children. The child is given a mild shock a few seconds after hearing a strong sound, and the experience is repeated five to ten times. Subsequently, his psychogalvanic responses are different, even if the shock is absent, provided a fainter tone is heard. These responses

are the basis for judging his level of hearing.

Sound Field Testing

The approximate level of response to pure tones as well as to other types of sound stimuli may frequently be determined by presenting the stimulus through a speaker and amplifying system. The procedure consists of allowing the child to play with a toy while he is only a few feet from the loud speaker. He is thus in a sound field whose strength can be changed as the examiner desires. The child may be considered to have at least as good hearing as is required to receive the faintest stimulus that distracts him from his toy. This type of test requires special equipment, and although it is more practical for use in hearing centers, it is becoming available for the otolaryngologist's office.

ADVICE OF THE OTOLARYNGOLOGIST TO THE PARENTS

Suggestions for Training The Deaf Child

When parents bring a child to an otolaryngologist because they suspect that he has a hearing loss the thing that they want most is to have him prescribe medical treatment that will restore hearing. When they are told that there is nothing that will cure his hearing loss the blow is devastating. Frequently it comes as a fact that they are very reluctant to accept. Because of the intense disappointment, it is important that the parents be given positive assurance that something can and should be done. And unless that substitute is presented in a convincing manner with careful explanation, the visit to an otolaryngologist may be only the first of a long series from one office to another where parents spend time and money seeking a cure that does not exist. In the meantime, precious time is wasted.

It should be explained that children with hearing loss can and do learn to talk and to follow speech through lip reading in a satisfactory manner though it is by a long and very difficult process. Here the word "satisfactorily" should probably be emphasized rather than the word "normally." The speech of the congenitally deaf is rarely if ever "normal" in sound. It is characterized by a monotone of pitch, by words and sentences abnormally accented and by faulty rhythm. Even the speech sounds themselves rarely approximate the sounds of speech learned by hearing. But this, too, must be emphasized: The speech can be understood and it can and does serve as a satisfactory means of communication.

It is a real problem for the child with little residual hearing to learn speech and language. He will need a tremendous amount of help. When he is still a baby those who can help him most are his parents. In an open letter to the parents of John the situation has been presented in the following manner:

It is most important from the very beginning that you regard John as essentially "normal"; that you see him as a child who is able to see, to feel, to smell, to taste, to run, to jump, to cry, to laugh, to be "good" or to be "naughty." In other words, he is just like any child in every respect but in his ability to hear. You must treat him as you would treat any child his age. Because you cannot communicate with him as you would with a normal child does not mean that you cannot teach him to obey, to be thoughtful of others, to care for himself and for his possessions, just as you can teach any child. One might almost say that it is more important that a hard of hearing child be taught to obey than it is for a child who hears normally, because the hard of hearing child's safety may depend upon your hearing approaching danger and warning him of it.

Some time every day, play with John. Don't spoil him but let him know, in ways that he can understand, that you love him and very dearly. By accepting his hearing loss, you can do much to teach him to accept it. This is one of the very hardest things that we will suggest that you do. But it is perhaps the most important one thing in his development. You see, he learns his attitudes from you. If you feel no shame, no embarrassment over his hearing loss, he will feel none. He will learn to accept it as he accepts the fact that his grandfather wears glasses.

Guiding Learning

There are several avenues through which children learn, namely:

1. Through watching others and doing or remembering what they see others do.
2. Through feeling and identifying an object or action by associating and remembering how it feels.
3. Through listening and imitating or remembering what they hear.

Because John is deaf, he is cut off, at least partially, from one avenue of learning. He does not hear what goes on around him. As a consequence, his speech has not developed in relation to the rest of his development or in a manner comparable to that of other children his age. That is due to the very nature of speech development. All babies "babble." By "babbling" we mean a repetition of sounds that have no meaning. The hearing child learns to form that babble into meaningful words by imitating what he hears being said around him. A baby learns to say "mamma," "bye-bye," "daddy" by listening to an adult or another child say the words, then trying to imitate what he hears. The hearing baby makes repeated attempts before even the word "mamma" is intelligible. This last point is very important. Try to remember it when John must try and try before he is able to say a word. He cannot, at first, imitate what you say simply because he does not hear what you say. His organs of speech are perfectly normal; therefore, he must be given other means of imitating speech than through the ears. As was said previously, children learn through watching and through feeling as well as through listening. Therefore, we must teach a hard of hearing child to watch speech and to feel speech in order to teach him to talk.

Introducing Speech

A very important and certainly a very difficult thing that the hard of hearing child must learn is that there is such a thing as speech. One of the ways to teach him that idea is to talk to him. Talk to him on any and on all occasions just as you would talk to a hearing child. But when you talk to your child with impaired hearing, be sure that he is looking at you and that the light is shining so that he can see you speak.

At first it will be difficult for him to understand why he must look at you when you speak to him. At first he will understand very little of what you say to him. It must be borne in mind also that a hearing child must learn to understand what is said to him. He learns meanings by associating the phrase that he hears you say with an action that he sees you perform. In like manner the deaf or hard of hearing child learns to associate the words or phrases that he sees you say with actions that he sees you perform. He will not understand even after a long period every word that you say. It isn't necessary. But he will learn to see meaning in what you say. That is important. Try to word the phrases that you use in the same way at all times. It is by repetition that John will learn; for example, you might use some of these in the course of a day:

1. It is time to get up!
2. Come to breakfast, lunch or dinner.
3. Eat your breakfast, lunch or dinner.
4. Wash your hands and face.
5. Comb your hair.
6. Hang up your clothes.
7. Pick up your clothes.
8. Shut the door.
9. It's time for bed.
10. Good-night!

If these phrases, or ones comparable to them, are ones that you use, say them every time that there is an opportunity for John to associate the phrase with its action. Don't talk to him any differently than you would talk to anyone else. Speak naturally, without exaggerated lip movements, and in a normal tone of voice. At this point you are not trying to teach speech, as such, but are trying to teach John to realize that speech is his means of communication.

The next step in teaching John about speech concerns itself with teaching him that objects have names. This can best be done by using toy objects and pictures. It is important that both represent things with which he is very familiar. The list might include such things as:

1. a dog	5. a spoon	9. a baby
2. a cat	6. a car	10. a house
3. a knife	7. a chair	
4. a fork	8. a table	

Most ten-cent stores have miniature objects that can be used. By going through popular magazines you will find brightly colored pictures that lend themselves well to this purpose. They may be cut out and pasted on file cards that can be purchased at the ten-cent store for a few cents. One of the first things that John will enjoy doing with objects and pictures is matching. Place the cards on the table. Place the car, for example, on the picture. Show John that he is to match the rest of the toys to the pictures. This exercise teaches him to observe likeness and relationship.

Other pictures that will be found usable from the beginning are these:

1. a bar of soap (some soap)
2. a bowl of soup (some soup)
3. an apple
4. an orange
5. some tomatoes
6. some meat
7. a tooth brush
8. a boat
9. a watch or clock
10. a pair of shoes

Implementing Names of Objects

After John has learned to match the following objects and the pictures they may be used in the following ways:

1. John may sit on your lap facing you. Three or four objects or pictures may be placed on the table beside you. The ones chosen first should be those that look the least alike on the mouth. This can be determined by saying the words, as naturally as possible, in a mirror. One might use a knife, a shoe, and a baby. Place John's hands on your face as you say the word knife. Pick up the knife and show him that the word and the object go together.

2. Show him the words on your mouth without having him feel your face.

3. Follow the same procedure with the word shoe and the word baby.

4. At this point it is well to bear in mind that even the child with a marked hearing loss is going to use his residual hearing with or without amplification, for speech development. It is difficult to know, when a child is only three years old, just how much hearing he does have. Go on the assumption, therefore, that he does have some hearing. As you introduce each new object, say the word

into his ear in a low voice. Never shout or raise your voice above a normal conversational tone. Simply say the word as clearly as you know how.

5. When you feel sure that John knows what you are saying, have him point to the object whose name you say. Encourage him when he does well.

Routinizing Lesson Time

It won't be possible for you to work with John for long periods of time. Never force him. You will do well to hold his attention for ten minutes at first. See to it that he enjoys his lesson. He will have to have a great many before his speech is satisfactory. Gradually as you add more objects and pictures to your collection you will be able to increase the time that you work. It is a good idea to set aside a given time every day for the lesson. Just before lunch you might sit down with him for a few minutes. Try not to have interruptions. If you work in the same place, at the same time every day, John will come to look forward to it, to expect it as a part of his day.

From the beginning it is helpful to keep a journal in which to record John's progress. In six months you will look back and be amazed at how much you have done. Progress seems slow from day to day. It is. But John is learning fundamental ideas about speech that he will carry with him all his life. The whole business is not easy for him. Be patient with him.

Keep in mind at all times that the reason back of all the training attempted at this period is to teach John that speech is his means of communication. At first he will probably not attempt to imitate anything you say. Gradually he will attempt speech. Don't expect perfect imitation. Remember way back at the beginning of this discussion we said that a hearing baby tries and tries before even the word "mama" is intelligible. Accept anything that John gives you by way of imitation. Encourage him to try and try again. The deaf child has a real job before him in learning to talk. Be patient with him in his efforts.

How the Radio and Television Can Be Used

A new use is now being made of radio and television as part of the auditory training. Ear phones are provided for the child and plugged into the radio or television set with a separate monitoring adjustment to meet the individual's listening preference. In this way the speaker volume may be adjusted simultaneously for the enjoyment of others in the family.

The sketch (fig. 4) shows the revisions in a standard television or radio set which will permit a hard of hearing child to listen, using his own head phones and monitoring the level to meet his volume requirement.

The additional components necessary for adding earphones to a radio or television receiver are:

Earphones: High impedence, magnetic.
Condenser: 0.1 mfd. 600 volt rating.
Potentiometer: R—10 to 20 ohm, wire wound.
Phone jack: Single circuit type.

The above combination is desirable if the hearing loss is severe. The radio or television volume control can be used to adjust the desired volume on the earphones and then R_1 can be adjusted to suit those listening to the speaker or can be turned completely down.

In some cases, particularly if the phones are to be used by one with a less than severe loss, the optional connection of the phone jacks as shown by the dotted lines might be used. This would be necessary if the speaker volume was insufficient when the earphone volume was satisfactory. The set control can

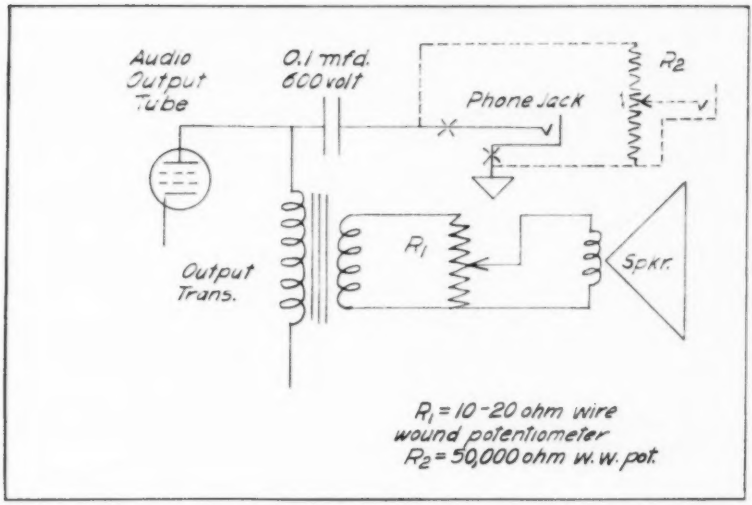

FIGURE 4.

then be used to set the volume on the speaker and R_2 then adjusted for satisfactory earphone output.

Further Suggestions

As a further help to the child and to the parents it may be suggested that they apply for the correspondence course sent out without cost by the John Tracy Clinic, 804 West Adams Boulevard, Los Angeles, California. This material sent out in monthly installments for a year provides helpful suggestions for child training and for the beginning of speech and lip reading instruction. Each parent is asked to send a report to the Clinic each month describing his child's progress. An attempt is made by the Clinic to answer questions and comment personally about the progress of each child. It should be pointed out that it will take time and a tremendous amount of patience to teach a child the beginnings of communication. But it is a most satisfying and worthwhile project and well worth the time and energy expended. Various states or localities have programs for preschool children.

Deaf children in most States may enter school at the age of five. All of the States either have their own residence school or provide for it by reciprocity in a nearby State. There are sometimes Day Schools available which are directed by private funds or by City Boards of Education. The over-all needs of the individual child will usually dictate where he will receive the best training for him. Because it is to the otolaryngologist that parents of children with hearing loss usually come for advice concerning school placement, it behooves him to know something of the facilities that are available in his community and something of their assets and limitations.

If parents wish to do further reading, the following bibliography might be useful:

1. *The Volta Review* (a magazine concerning itself with the education of deaf and hard of hearing children). The Volta Bureau, 1537 35th Street N.W., Washington 7, D. C.

2. *Reprints from the Volta Review*
   a. "Letters to the Mother of a Deaf-Born Child" by Harriette Montague.
   b. "To Parents of Little Deaf Children." The Staff, Lexington School for the Deaf.
   c. "What the Parent Can Do for the Pre-School Child" by Mary C. New.
3. *Books*
   a. "Opportunity and the Deaf Child" by Ewing and Ewing. Published by the University of Manchester Press.
   b. "Language for the Pre-School Deaf Child" by Grace Harris Lassman. Published by Grune & Stratton.
   c. "What's Its Name" by Jean Utley. Published by the University of Illinois Press.
   d. "Your Deaf Child: A Guide for Parents" by Helmer R. Myklebust. Published by Charles C Thomas, Springfield, Ill.

Follow-up examinations are important and the otolaryngologist should be available for further consultation until the child's course is definitely settled.

REFERENCES

1. Dix, M. R. and Hallpike, C. C.: The peep-show; a new technique for pure-tone audiometry in young children, Brit. M. J., 2:719-723 (Nov. 8) 1947.
2. Ewing, I. R. and Ewing, A. W. G.: The ascertainment of deafness in infancy and early childhood, J. Laryng. & Otol., 59: 309-333 (Sept.) 1944.
3. Guilford, F. R. and Haug, C. O.: Diagnosis of deafness in the very young child, Arch. Otolaryng., 55:101-106 (Feb.) 1952.
4. Hardy, William G. and Bordley, John E.: Special techniques in testing the hearing of children, J. Speech Disorders, 16:122-131 (June) 1951.
5. Keaster, Jacqueline: A quantitative method of testing the hearing of young children, J. Speech Disorders, 12:159-160 (June) 1947.
6. Utley, Jean: Suggestive procedures for determining auditory acuity in very young acoustically handicapped children, Eye, Ear, Nose & Throat Monthly, 23:590-595 (Dec.) 1949.

VISION IN INDUSTRY

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BY INVITATION

Vision for the Job

Most of the physical and mental capacities of employees to learn and perform specific industrial jobs are difficult to change. For instance, people are endowed with certain levels of intelligence, which restrict their ability to absorb job knowledge above those levels. Little can be done to adapt an individual's temperament to his or her job. Motivation, the urge to improve and succeed on the job must come from within the employee, while manual dexterity, a physical quality which differs markedly among employees, is influenced only slightly by job training.

Visual Classification For Successful Job Performance

People are not alike by nature, training, education, or inclination. A job may be done well by one, fairly well by another, and very poorly by a third. The job may be a source of great personal satisfaction to one, a monotonous and boring task to another, and entirely beyond the capacities of the third. Modern industry is becoming increasingly aware of the importance of placing on every job an individual who is not only able to do the job well, but who, in addition, is temperamentally adapted to the job in question.

Just how well an employee can perform his job may be based partly upon dexterity of the hands or some other physical factor. In any case, the performance of his job is very largely governed by the usefulness of his eyes, or, as industrial psychologists put it, his visual skills.[1] Upon these visual skills may depend the amount and quality of his production, his accident record, his capacity for accepting greater responsibilities, and other equally important factors. In the matter of placement, visual skills are highly essential qualities, for they affect the ability of potential new employees to learn and perform assigned jobs. Vision has a real bearing, too, on the satisfaction of an employee with his work and his chances for improving his opportunities for advancement and increased earnings.

Of all the modern methods available to management for determining the efficiency of employees on the job, as well as the potential efficiency of applicants for jobs, adequate measurement and classification of visual performance stands near the top of the list. By use of a sound visual program, which has specific purposes and objectives, the management of an industry can find out more exactly where employees and applicants for jobs can be best fitted into any industrial effort.

A Vision Program in a Typical Modern Industry

Visiting a typical modern industrial plant, an observer is amazed to see the miracle that present-day machines perform. Viewing these mechanized marvels, he is likely to conclude that industry is completely developed, and that we have reached the awaited millenium of material prosperity. True, through

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Presented at Lincoln Extension Institute, Inc., Cleveland, Ohio. The text has been revised.

the technologic improvements of our generation, industry has greatly improved production. It has also succeeded in producing more articles, faster, better, cheaper—and at the same time reduced the physical effort required of the worker. But, in accomplishing this, industry has made heavy demands on the worker's eyes.

Realizing that machines have achieved a degree of perfection far surpassing that of the operator, management naturally has become concerned with the human element. Through personnel departments industries have set up batteries of placement tests designed to gauge a job applicant's adaptability and likelihood to succeed on his job.

The economic value of medical and personnel departments has long been proved. Until a few years ago, however, there was no factual evidence to show how indispensable to worker and management alike a sound and workable vision program would be.

The common practice had been to test a job applicant's ability to read a line of type a certain size, at a distance of twenty feet. This test of vision was only given at the time of hiring and the individual either passed or failed—according to some arbitrary standard. Before industry could have a satisfactory vision program, many different phases of vision, as well as a new way of appraising a person's visual performance, had to be considered.

In 1940, investigators in a cooperative research project at Purdue University identified a number of visual skills which were consistently called into play by modern industrial jobs. Of these, twelve were eventually decided upon as being most significant—twelve of which could be incorporated in a reliable and compact testing instrument. The Scientific Bureau at Bausch & Lomb Optical Company has developed an instrument known as the Ortho-Rater with which these tests can be administered easily and quickly, close to the work area. The tests involve both near and distance vision. They include: left, right, and binocular* acuity; vertical and lateral phoria† (eye posture); color discrimination and depth perception.

Today, efficiently operated plants throughout the country are taking advantage of the many opportunities afforded by a sound vision program.[2] In a typical industry, such a program begins with the making of a scientifically precise inventory of the visual performance of all employees. The records of these tests, along with the foremen's ratings and job performance records, are used to correlate vision and job performance. From these composite analyses, profiles showing the visual requirements for each job are obtained. By using these, management can determine which workers are not now on jobs where they can fully utilize the visual skills and capacities they now possess.

Results of thousands of tests in industrial plants throughout the country have been analyzed. They indicate that many applicants for jobs, traditionally rejected for employment because of failure on certain visual tests, can be fitted into jobs commensurate with their visual ability. Individuals whose visual characteristics do not measure up to the standards prescribed for their particular job can be quickly identified and referred to the ophthalmic professions for visual care. Such personalized atten-

* Binocular—Pertaining to both eyes; Binocular acuity—ability of both eyes, working together, to perceive small details at a prescribed distance.

† Phoria—the postural tendencies of the eyes in relation to each other. Measuring "eye posture" involves determining whether the eyes tend to turn in or out or whether one eye tends to turn up or down in relation to the visual axis of the other.

tion usually results in improvement of vision to such an extent that these employees can again be fitted into jobs involving specialized visual performance.

Testing Employees' Visual Performance

A testing procedure is the initial step in any vision program for industry. Employees and applicants are tested to determine their visual qualifications for jobs.

Testing of visual performance is accomplished without regard to the cause of the individual variations in vision. The tests are standardized so that the results are affected only by the visual performance of the employee.

The actual testing is done in the employment office, medical department or out in the plant, close to the employees' working stations. Tests require but a few minutes for each employee and are supervised by a staff member, selected by management, who receives intensive training.

A Fact-Finding System Reveals Visual Requirements for Every Job

Testing for visual performance is only the first step in a complete industrial vision program. In themselves, tests are inconclusive and must be interpreted for management by means of a tabulating and fact-finding method.

The hub of the vision program in modern industry is a fact-finding system. This includes procedures for providing specific information about each individual—present employee or applicant—in order to properly evaluate his or her visual abilities and to fit these abilities into useful and efficient industrial effort. With this fact-finding system, a wealth of vital and usable data on employee qualifications is quickly and easily obtained. The comprehensive and easily interpreted employee test record presents a graphic picture of the visual characteristics of each individual employee in comparison with standards for specific jobs based upon successful employee groups. Up-to-the-minute statistical and tabulating methods are an integral part of the system for gathering usable facts from the test records. These fact-finding methods permit quick and accurate identification of groups of employees or applicants for jobs whose visual performances fall within or outside any specific visual job standards. Such job standards are determined by management after the testing of employees and fact-gathering from the records have indicated the type of vision most desirable for a given job.

This method of analyzing the facts of vision represents the most modern of personnel procedures. For example, it determines with accuracy the relative importance of vision to various jobs in the plant. Supervisors are able to discover the employees who can be developed into better producers through improvement in job conditions or through assistance and counsel by professional ophthalmic services. As a result of a vision fact-finding system safety men are able to identify individuals in the plant who possess visual characteristics which make them less liable to injury when placed on hazardous jobs. The system aids in the selection of applicants whose visual aptitudes mark them as most desirable for job training courses. It enables management to keep on the job such veteran employees whose skill and experience are invaluable in production, by assuring the maintenance of their visual efficiency through assistance from the ophthalmic professions.

More Efficient Production Through Visual Data

It has been proved to be possible, with a sound vision program, to increase

quantity and quality of production by amounts varying between 15 and 20 per cent.[3] Many unsuspected causes of inefficient production which are marked by spoiled work and wasted material are often directly traceable to inadequate vision for the job.[4] With detailed factual information made possible through an industrial vision program, management can classify each worker according to his visual ability to meet the production requirements of a particular job.[5] Thus, increases in production can be achieved, not as the result of incentives, or of forced speeding up of the work, but almost solely as the result of choosing persons with the right visual characteristics for the job.

Visual Standards Insure Better Placement

Without adequate tests of visual ability and capacity and without vision standards for different jobs, employment departments reject many desirable applicants, and unwittingly take on others for jobs for which they are not qualified.[6]

According to statistics obtained from industrial vision program reports, as high as 20 per cent of the job failures of individuals on industry can be attributed to inadequate visual performance. Improvements in job performance of 8 to 40 per cent have been achieved by scientific placement of workers according to their visual qualifications. Visual performance tests and the fact-finding methods of analyzing visual data assure the scientific selection of applicants with desirable visual qualifications for good job performance.[7] Even in areas where an acute labor shortage exists, an industrial vision program makes possible most efficient use of available manpower.

Important Clues for Solving Industry's Health and Absentee Problem

As a further service to management and worker alike, industrial vision programs bring to light many hidden causes of discontent among workers and reasons for frequent work interruptions.[8] Why are workers involved in some industrial occupations miserable towards the end of the work day—unable to fully enjoy their off-hours' recreation?

Absenteeism and frequent hospital visits are two irksome phases of management's old production problem. A sound vision program gives us an important clue to solving this recurring industrial health problem.

Visual Data Is Valuable for Medical Department Records

A sound vision program affords the plant medical department wider opportunities for service to employees. Complete records of employee visual characteristics can be put to practical use by the medical department. Extreme deficiencies in visual performance of which the employee is unaware are frequently related to ocular or general diseases which affect worker efficiency.

Seven out of every ten complaints of headaches can be traced to inadequate vision. Employees tire easily when their eyes are straining to see. Eyes which are not right for the job drain heavily on a person's nervous energy and are a cause of the worker's physical discomfort and lack of interest in his job.

Visual performance tests, both at the time of employment and later on the job, often provide definite clues to the identification of unsuspected health problems which can be given prompt

attention. Some cases of workers with extremely low visual performance scores have been referred to the medical department where it was found that health problems were causing lack of visual efficiency. When these health factors were corrected, visual performance scores were improved.

Other workers whose vision fails to meet standards set up for their specific jobs, or whose morale is lowered because of eye fatigue or poor visual performance, can be referred to professional ophthalmic sources for examination and the required rehabilitation. In compensation cases where eyesight is involved, complete records of employee vision are quickly available.

Visual Performance and Safety

During the past few years, management has wisely spent thousands of dollars on eye-protection programs.[9] However, investigators have found that there are at least four times as many accidents caused by faulty vision as there are injuries inflicted upon the eyes themselves.

The statistical evidence produced as a result of vision tests reveals the close relationship of employee visual characteristics to accident experience. Analyses show that workers with superior visual performance tend to have excellent safety records. The most serious injuries, including those which are responsible for the greatest amount of time lost from work, are experienced by employees with the poorest visual performance.

Because factual evidence indicated that visually efficient workers have significantly fewer accidents, it follows that placement of individuals in hazardous job surroundings should be guided to a great extent by the factor of visual performance.[10] The Safety Director finds such data helpful not only in the recommending of minimum visual requirements, but also in the unveiling of unsuspected hazards. Likewise, visual performance records can be used in connection with accident insurance and compensation cases.

Visual Tests and Job Training

The training of beginners invariably represents a substantial investment for industry both in supervision and for the necessary training facilities and equipment. It is important, therefore, that only visually adaptable applicants be considered for schooling in work procedure. Visual performance tests and analyses by means of the fact-finding system assure the selection of individuals whose visual capacities fall within predetermined visual standards for jobs in the plant.

Experience clearly indicated that applicants with poor visual performance are more likely to become discouraged easily. They frequently quit part way through the training course, without realizing the cause of their difficulty. Recognition of the importance of vision adequate for the job will have an important influence on methods and routine of training new employees.

BIBLIOGRAPHY

Key numbers in the text of this article refer to the articles listed below. These are not direct references but give the reader a source of further information concerning any one of several phases of industrial vision.

1. Tiffin, Joseph: Industrial Psychology, Prentice-Hall, New York, 1942.
2. Woodbury, D. O.: Better eyes for industry, The Technological Review, 48:159-162 (Jan.) 1946.
3. Stump, N. F.: How to increase productivity through visual tests, Industrial Relations (Oct.) 1946.
4. Coleman, J. H.: The visual skills of precision instrument assemblers, J. Consult. Psychol. (July-Aug.) 1945.

5. Weibel, G. L.: Visual efficiency improved at Magnet Mills, Textile World (Aug.) 1945.

6. Boyd, J. D.: Vision service for employees, Cotton (Aug.) 1946.

7. Coleman, J. H., and Feinberg, Richard: Vision tests for inspectors insure good placement, Factory Management and Maintenance (Jan.) 1945.

8. Leedke, H. H.: The health program in a pulp and paper mill, The Paper Industry and Paper World (Aug.) 1946.

9. Feinberg, Richard, and Sewell, J. C.: Eyesight through foresight, National Safety News (Jan.) 1945.

10. Stump, N. F.: Spotting accident-prone workers by vision tests, Factory Management and Maintenance (June) 1945.

News - - - Notes

FIFTH PAN-AMERICAN CONGRESS OF OPHTHALMOLOGY

The Fifth Pan-American Congress of Ophthalmology will be held at Santiago, Chile, in February, 1956. The exact date will be announced later.

The Chilean Society of Ophthalmology has designated the following officers for the Congress: President, Dr. Cristobal Espildora; Vice-President, Dr. Santiago Barrenechea; Secretary-General, Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile; and Treasurer, Dr. Abraham Schweitzer.

THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, INC.

The Mid-Winter Section Meetings of the American Laryngological, Rhinological and Otological Society, Inc., will follow the Triological Council Meeting in Syracuse, N. Y. on January 6, 1953. The Eastern Section Meeting will be held at Syracuse on January 7. On January 12 the Southern Section Meeting will be held at the Andrew Jackson Hotel, Nashville, Tenn.; on January 19 the Middle Section Meeting will be held in Chicago at the Drake Hotel; and on January 24 the Western Section Meeting will meet at the Elks Club in Los Angeles, Calif.

Dr. C. Stewart Nash, Secretary of the Triological Society, also announces the following meetings to be held at the Roosevelt Hotel in New Orleans, April 21 through May 2, 1953: American Board of Otolaryngology, April 21 to 25; American Laryngological Association, April 26 and 27; Triological Society, (mornings only) April 28 to 30; American Broncho-Esophagological Association, (afternoons only) April 28 and 29, and The American Otological Society, Inc., May 1 and 2.

CALIFORNIA

The Research Study Club of Los Angeles announces its Twenty-Second Annual Mid-Winter Clinical Convention in Ophthalmology and Otolaryngology, January 19 through January 30, 1953. The guest lecturers for otolaryngology will be Dr. James H. Maxwell of Ann Arbor, Mich., and Dr. Harry P. Schenck of Philadelphia. In ophthalmology the guest lecturers will include Dr. Ramon Castroviejo of New York, Dr. A. E. Maumenee, Jr. of San Francisco, and Dr. Meyer Wiener of Coronado, Calif.

The first week, January 19 to 24, will be devoted to otolaryngology. The ophthalmology section will begin Monday, January 26, and end on January 30, preceded on January 23 to 25 by Dr. Wiener's special course on surgery of the eye.

The fee for the Clinical Course is $100.00 and for Dr. Wiener's special course $50.00. Fees should be sent to Pierre Viole, M.D., Treasurer, 1930 Wilshire Boulevard, Los Angeles 5, Calif.

The Stanford University School of Medicine will present the annual postgraduate conference in Clinical Ophthalmology from March 23 through 27, 1953. The program this year will be devoted to Ophthalmic Surgery. Registration will be open to physicians who limit their practice to the treatment of diseases of eye or eye, ear, nose and throat. In order to allow free discussion by members of the conference, registration will be limited to thirty physicians.

Instructors will be Dr. A. Edward Maumenee, Dr. Dohrmann K. Pischel, Dr. Jerome W. Bettman, Dr. Max Fine, Dr. Earle H. McBain, and Dr. Arthur J. Jampolsky.

Programs and further information may be obtained from the Office of the Dean, Stanford University School of Medicine, 2398 Sacramento Street, San Francisco 15, Calif.

FLORIDA

The seventh annual University of Florida Midwinter Seminar in Ophthalmology will be held in January, 1953, convening January 12 and continuing through January 17. As in previous years, Miami Beach will be the host city.

The lectures on ophthalmology will be presented on January 12, 13 and 14, and will include such distinguished teachers

as Dr. I. S. Tassman, Philadelphia; Dr. Brittain Payne, New York; Dr. Charles E. Iliff, Baltimore; Dr. Lawrence T. Post, St. Louis; and Dr. Walter S. Atkinson, Watertown, N. Y.

Outstanding otolaryngologists who will lecture on January 15, 16 and 17 are Dr. Samuel Salinger, Chicago; Dr. A. C. Furstenberg, Ann Arbor, Mich.; Dr. Frank D. Lathrop, Boston; Dr. Victor Goodhill, Los Angeles; and Dr. Theodore E. Walsh, St. Louis.

On Wednesday evening, January 14, all registrants are cordially invited to attend the Midwinter Convention of the Florida Society of Ophthalmology and Otolaryngology, which meets concurrently with the Seminar.

The registration fee for the Seminar is $40.00. A check for $10.00, payable to the University of Florida Midwinter Seminar, must accompany your application, which should be sent to Dr. Walter T. Hotchkiss, 541 Lincoln Road, Miami Beach, Fla.

GEORGIA

The Georgia Society of Ophthalmology and Otolaryngology will hold its spring meeting at the General Oglethorpe Hotel in Savannah, Ga., on March 6 and 7, 1953. The following internationally known teachers will be the speakers: Dr. Peter C. Kronfeld, Chicago; Dr. Edmund B. Spaeth, Philadelphia; Dr. Frank B. Walsh, Baltimore; Dr. Louis H. Clerf, Philadelphia; Dr. Edmund P. Fowler, Jr. New York; and Dr. Theodore E. Walsh, St. Louis. Correspond with the Hotel for reservations, but for any other desired information, write to the Society's secretary, Dr. Alton V. Hallum, 245 Doctors Building, Atlanta, Ga.

ILLINOIS

The Nineteenth Convention of the Central Illinois Society of Ophthalmology and Otolaryngology met September 12, 13 and 14, 1952, at the Abraham Lincoln Hotel in Springfield. Papers were read by Dr. Edward C. Albers, Champaign, Dr. Clarence A. Fleischli, Springfield, Dr. Thomas C. Galloway, Evanston, and Dr. G. A. Rawlins, Alton. The guest speaker was Dr. Paul A. Chandler, Harvard Medical School, Boston. He spoke on "Narrow Angle Glaucoma" and "Complications of Cataract Surgery."

The establishment of the Louis Bothman Fellowship in Ocular Pathology at the University of Illinois College of Medicine has been announced by Dean Stanley W. Olson.

The University has received a grant in the amount of $5,000 from the Louis Bothman Memorial Fund, Inc., of Phi Delta Epsilon fraternity in support of the fellowship in ophthalmology.

The late Dr. Bothman held the rank of clinical professor of ophthalmology at the University of Illinois. He was instrumental in developing a laboratory in ocular pathology at the University's Research and Educational Hospitals.

LOUISIANA

The Mid-Winter Convention of the New Orleans Academy of Ophthalmology, which will meet January 25 to 30, 1953, will feature a symposium on Medical Ophthalmology, according to a notice issued by Dr. James Allen.

MASSACHUSETTS

The regular fall meeting of the New England Oto-Laryngological Society will be held on November 19, 1952, at the Medical School Auditorium of the Boston University School of Medicine.

MINNESOTA

The University of Minnesota will present a continuation course in Ophthalmology for Specialists at the Center for Continuation Study from January 19 to 24, 1953. Emphasis will be placed throughout the session on therapy of a variety of ocular disorders.

The visiting faculty for the course will include Dr. Kenneth C. Swan, Professor and Head, Department of Ophthalmology, University of Oregon Medical School, Portland. The course will be presented under the direction of Dr. Erling W. Hansen, Professor and Director, Division of Ophthalmology, and the remainder of the faculty will include members of the staff of the University of Minnesota Medical School and the Mayo Foundation.

MONTANA

Meeting dates for the mid-winter session of the Montana Academy of Oto-Ophthalmology are set for February 22 and 23, 1953, at Butte, Mont.

At the annual summer meeting of the Montana Academy of Oto-Ophthalmology at Missoula, Mont., September 19 and 20, held in conjunction with the Montana Medical Association, the program con-

sisted of two scientific papers with case presentations and illustrative slides by Dr. J. C. Long of Denver.

NEW YORK

The Department of Ophthalmology of the State University of New York Medical Center at Syracuse will present its third annual postgraduate course in ophthalmology at the Hotel Syracuse, Friday and Saturday, December 5 and 6.

The following guest lecturers will participate: Dr. Albert D. Ruedemann, Dr. F. Bruce Fralick, Dr. Harold G. Scheie, and Dr. Raynold N. Berke.

The tuition fee will be $25.00 payable to the State University of New York Medical Center at Syracuse, Irving Ave., Syracuse, N. Y. This fee covers tuition, daily luncheons and dinner Friday night. The course will be limited to 60 members. These will be accepted in the order in which applications accompanied by checks are received. Inquiries regarding the course may be addressed to Dr. Harold H. Joy, 504 State Tower Building, Syracuse, N.Y.

Dr. Charles L. Schepens, of the Howe Eye Laboratory, Boston, will deliver the sixth annual Mark J. Schoenberg Lecture at the New York Academy of Medicine on Monday, December 1.

This lectureship was established as a memorial to the late Dr. Schoenberg's interest in the prevention of blindness. It is sponsored jointly by the National Society for the Prevention of Blindness and the New York Society for Clinical Ophthalmology.

The title of Dr. Schepens' talk will be "The Prognosis and Treatment of Retinal Detachment."

PENNSYLVANIA

The Section on Ophthalmology of the College of Physicians of Philadelphia will meet November 20, 1952, at the College of Physicians Building, Philadelphia.

The Fifteenth Annual deSchweinitz Lecture will be presented by Dr. Francis Heed Adler on "Pathologic Physiology of Strabismus."

The Fifth Annual Clinical Conference of the Staff and Ex-Residents of the Wills Eye Hospital will be held on March 20 and 21, 1953, in Philadelphia.

The Arthur J. Bedell Lecture will be delivered by Dr. John H. Dunnington of New York.

VIRGINIA

The Gill Memorial Eye, Ear and Throat Hospital will conduct its Twenty-Sixth Annual Spring Congress in Ophthalmology and Otolaryngology on April 6 to 11, 1953, at Roanoke, Va.

AUSTRALIA

The Thirteenth Annual General Meeting of the Ophthalmological Society of Australia will be held at Adelaide, South Australia, in the week commencing October 12, 1953. Dr. A. L. Tostevin of Adelaide is president of the society and Dr. Arnold L. Lance is secretary.

POSITIONS AVAILABLE

Residency in Ophthalmology at the George F. Geisinger Memorial Hospital and Foss Clinic, Danville, Pa. Applicant must have had previous ophthalmic training and/or postgraduate course in ophthalmology. Statistics for 1951: Out patients, 11,192; refractions, 5,480; consultations, 394; ophthalmic operations, 362; glasses released, 3,551; cataract extractions, 78; ophthalmic admissions, 285. Applications should be addressed to Clyde H. Jacobs, M.D., Director of the Department of Ophthalmology, Foss Clinic, Danville, Pa.

Listings of positions available should be sent to W. L. Benedict, M.D., 100 First Avenue Building, Rochester, Minn., by the fifth of the month preceding publication. They should include (1) type of physician wanted (ophthalmologist or otolaryngologist; diplomate, resident, etc.); (2) type of position to be filled; and (3) whom to write for further information. Unless otherwise requested, listings will be published once only.

The Academy will handle no further correspondence beyond the listing and assume no responsibility. Neither does it endorse or guarantee any of the published listings.

Assistant Residency in Otolaryngology — AMA, ACS approved; 45 bed EENT hospital. Salary and maintenance. Apply: Superintendent, McPherson Hospital, Durham, N. C.

Otolaryngologist: A position for a resident is available at the Episcopal Hospital, Philadelphia, Pa. For details write Otto C. Hirst, M.D., Episcopal Hospital, Philadelphia 25, Pa.

A Board man in ear, nose and throat work is wanted to establish a practice in a Southern California community. Excellent opportunity. Opening within 6 to 12 months. For details, write George S. Zugsmith, M.D., 529 W. Eighth St., San Pedro, Calif.

Resident wanted: A man who has had training in the Basic Sciences to complete the six months work of the Senior Resident and the twelve months as House Surgeon at the State of Wisconsin General Hospital, University of Wisconsin. Write to Dr. Frederick A. Davis, Professor of Ophthalmology, 224 West Washington Avenue, Madison 3, Wis.

DIRECTORY OF OPHTHALMOLOGIC AND OTOLARYNGOLOGIC SOCIETIES

INTERNATIONAL

INTERNATIONAL ASSOCIATION FOR PREVENTION OF BLINDNESS

President: Dr. P. Bailliart, 47 Rue de Bellechasse, Paris, France
Secretary-General: Prof. A. Franceschetti, rue A—Jentzer 22, Geneva, Switzerland

INTERNATIONAL COUNCIL OF OPHTHALMOLOGY

President: Sir Stewart Duke-Elder
Secretary: Prof. Dr. Edward Hartmann, 2, Avenue Ingres, Paris (16c) France

INTERNATIONAL ORGANIZATION AGAINST TRACHOMA

President: Dr. A. F. MacCallan
Secretary: Dr. F. Wibaut, P. C. Hoofstraat 145, Amsterdam, Holland

PAN-AMERICAN ASSOCIATION OF OPHTHALMOLOGY

President: Dr. M. E. Alvato
Secretary: Dr. Thomas D. Allen, 122 South Michigan Avenue, Chicago 2, Ill.
Time and Place: February 1956. Santiago, Chile

PAN-AMERICAN ASSOCIATION OF OPHTHALMOLOGY, PUERTO RICO CHAPTER

President: Dr. Luis J. Fernandez, Box 2206, San Juan 10, Puerto Rico
Secretary: Dr. P. Fernandez
Place: San Juan

PAN-AMERICAN ASSOCIATION OF OTO-RHINO-LARYNGOLOGY AND BRONCHO-ESOPHAGOLOGY

President: Dr. Jose C. Gros
Secretary: Dr. Pedro Hernandez Gonzalo, Calle 8, 358, Havana, Cuba

FOREIGN

THE OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETY OF ALBERTA

President: Dr. W. E. Spankie
Secretary: Dr. M. R. Marshall, Wells Pavilion, University Hospital, Edmonton, Alberta, Canada
Time and Place: Spring of 1953 in Edmonton

ALL-INDIA OPHTHALMOLOGICAL SOCIETY

President: Dr. G. Zachariah
Secretaries: Dr. S. N. Cooper and Dr. V. K. Chitnis, Laud Mansion, Queen's Road, Bombay 4, India

ASSOCIACAO MEDICA DO INSTITUTO PENIDO BURNIER

President: Dr. Leoncio de Souza ueiroz
First Secretary: Dr. Milton B. de Toledo
Second Secretary: Dr. Aloisio Af. Ferreira

AUSTRIAN OTOLARYNGOLOGICAL SOCIETY, VIENNA

President: Prof. Dr. E. Schlander
Secretary: Doz. Dr. O. Novotny, Vienna IX, Alserstrasse 4, Austria
Time: Annually

BELGIAN OPHTHALMOLOGIC SOCIETY

President: Dr. L. Weekers
Secretary-General: Dr. M. Appelmans, Avenue Ruelens 179, Louvain
Time and Place: January, June and November. Bruxelles

BOMBAY OPHTHALMOLOGISTS' ASSOCIATION

Chairman: Rotated
Conveners: Dr. S. N. Cooper and Dr. B. D. Telang, Laud Mansion 21, Queen's Road, Bombay 4
Time and Place: 7:30 p.m., third Wednesday of each month. The seven ophthalmic hospitals of Bombay by rotation

BRITISH ASSOCIATION OF OTOLARYNGOLOGISTS

President: Mr. V. E. Negus
Honorary Secretary: Mr. F. C. W. Capps, 45 Lincoln's Inn Fields, London W. C. 2, England

BRITISH MEDICAL ASSOCIATION, SECTION ON OPHTHALMOLOGY

President: Mr. O. G. Morgan
Secretary: Mr. A. G. Cross, 27 Harley Street, London W. 1, England

CENTRO DE ESTUDOS DE OFTALMOLOGIA DE SAO PAULO

President: Dr. Rubens Belfort Mattos
Secretary: Dr. Jose Carlos Gouvea Pacheco, Marconi 34, Sao Paulo

CHENGTU OPHTHALMOLOGICAL SOCIETY

President: Dr. Eugene Chan
Secretary: Dr. D. S. Shen, Eye, Ear, Nose and Throat Hospital, Chengtu, Szechuan, China
Place: Eye, Ear, Nose and Throat Hospital, Chengtu, Szechuan, China

CHINESE OPHTHALMOLOGY SOCIETY

President: Dr. C. H. Chou
Secretary: Dr. F. S. Tsang, 221 Foochow Road, Shanghai

CHINESE OPHTHALMOLOGICAL SOCIETY OF PEKING

President: Dr. G. C. Lin
Secretary: Dr. H. L. Chen, Ophthalmological Dept., Peking University Medical School, Peking
Time: Bimonthly

DEUTSCHE OPHTHALMOLOGISCHE GESELLSCHAFT HEIDELBERG

President: Prof. Dr. med. K. Wessely
Secretary: Prof. Dr. med. E. Engelking, Heidelberg, Universitäts-Augenklinik

FACULTY OF OPHTHALMOLOGISTS

President: Mr. O. M. Duthie
Secretary: Mr. J. H. Doggart, F.R.C.S., 45 Lincoln's Inn Fields, London, W.C. 2, England

FRENCH SOCIETY OF OPHTHALMOLOGY

Secretary-General: Dr. Marcel Kalt, 81 Rue St. Lazare, Paris 9, France
Time and Place: June 20, 1953 and May 16, 1954, Paris

Secretaries of societies are requested to furnish the information necessary to make this list complete and keep it up to date.

FRENCH SOCIETY OF OTOLARYNGOLOGY
Secretary: Dr. H. Flurin, 19 Rue MacMahon, Paris, France

GERMAN OPHTHALMOLOGICAL SOCIETY
President: Prof. W. Lohlein
Secretary: Prof. E. Engelking, Heidelberg

HUNGARIAN MEDICAL TRADE UNION, SECTION OF OPHTHALMOLOGY
President: Prof. I. Csapody
Secretary: Dr. E. Galla, Krisztina Körut 139, Budapest, Hungary
Time and Place: Bimonthly. Second Eye Clinic, Budapest

HUNGARIAN OPHTHALMOLOGICAL SOCIETY
President: Prof. G. Horay
Assistant Secretary: Dr. Stephen de Grosz, University Eye Hospital, No. 1, Illesucca 15, Budapest

ISRAEL OPHTHALMOLOGICAL SOCIETY
President: Dr. Aryeh Feigenbaum
Secretary: Dr. E. Sinai, 9 Bialik Street, Tel Aviv

MIDLAND OPHTHALMOLOGICAL SOCIETY
President: Dr. F. A. Anderson
Secretaries: Dr. P. Jameson Evans, 51 Calthorpe Road, Edgbaston, Birmingham 15, England
Dr. R. D. Weeden Butler, 18 Highfield Road, Edgbaston, Birmingham 15, England
Place: Birmingham and Midland Eye Hospital, Church Street, Birmingham 3, England

NEDERLANDSCH OOGHEELKUNDIG GEZELSCHAP
President: Prof. Dr. H. M. Dekking
Secretary: Dr. T. A. Vos, Laan v. Meerdervoort 394, the Hague

NORTH OF ENGLAND OPHTHALMOLOGICAL SOCIETY
President: Mr. A. McKie Reid
Secretary: Mr. W. M. Muirhead, 70 Upper Hanover Street, Sheffield 3, England
Time and Place: October to May. Manchester, Leeds, Newcastle-on-Tyne, Liverpool, Sheffield and Bradford

SOCIETY OF NORWEGIAN OPHTHALMOLOGISTS
President: Dr. J. C. Holst, Pilestredet 28, Oslo
Secretary: Dr. Thore Lie Thomassen
Place: Rikshospitalets Oeyenklinikk, Oslo

THE NOVA SCOTIA SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. C. K. Fuller
Secretary-Treasurer: Dr. E. I. Glenister, 513 Barrington Street, Halifax, Nova Scotia
Time: Four times yearly at dates to be arranged by the Executive

OPHTHALMOLOGICAL SOCIETY OF AUSTRALIA
President: Dr. A. L. Tostevin
Secretary: Dr. Arnold L. Lance, 27 Commonwealth Street, Sydney, New South Wales
Time and Place: October 12, 1953, Adelaide, South Australia

OPHTHALMOLOGICAL SOCIETY OF COPENHAGEN
President: Prof. Dr. Victor Larsen
Secretary: Dr. S. Ry Andersen, Rigshospitalets oejenafdeling, Copenhagen Oe, Denmark
Place: Rigshospitalets oejenafdeling

OPHTHALMOLOGICAL SOCIETY OF EGYPT
President: Dr. Ibrahim Ahmad Mohammad
Secretary: Dr. Mahmoud Lutfi, Ophthalmic Hospital, Giza
Time and Place: Annual meeting during March. Summer meeting during August. Dar El Hekmah, 42 Kasr El Ainy Street, Cairo, Egypt

OPHTHALMOLOGICAL SOCIETY OF HOSPITAL DE NUESTRA SENORA DE LA LUZ
Chairman: Dr. Manuel J. Icaza y Dublan
Secretary: Dr. Jorge Meyran, Ezequiel Montes 135, México, D. F.
Time and Place: Second Friday of each month. Hospital de Nuestra Senora de la Luz

OPHTHALMOLOGICAL SOCIETY OF NEW ZEALAND
President: Dr. L. S. Talbot
Secretary: Dr. W. J. Hope-Robertson, Kelvin Chambers, 16 The Terrace, Wellington
Time and Place: Annually. Auckland, Wellington, Christchurch and Dunedin alternately

OPHTHALMOLOGICAL SOCIETY OF SOUTH AFRICA
President: Dr. L. Staz
Secretary-Treasurer: Dr. J. Guillaume Louw, 901 Dumbarton House, Adderley Street, Cape Town
Time: Annually

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM
President: Dr. A. MacRae
Honorary Secretaries: Mr. A. G. Leigh and Mr. Harold Ridley, 45 Lincoln's Inn Fields, London

OPHTHALMOLOGISCHE GESELLSCHAFT IN WIEN
President: K. Lindner
Secretary: Ch. Eyb, Wien, IX, Alserstrasse 4

OXFORD OPHTHALMOLOGICAL CONGRESS
Master: Dr. F. A. Anderson
Hon. Secretary and Treasurer: Ian C. Fraser, F.R.C.S., Red Roofs, Kingsland, Shrewsbury

PHILIPPINE OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETY
President: Dr. Jesus Eusebio
Secretary-Treasurer: Dr. Jesus Tamesis, Philippine General Hospital, Manila

POLISH OPHTHALMOLOGICAL SOCIETY
President: Prof. Dr. W. Kapuscinski
Secretary: Dr. S. Topolski, Piusa 38, Warsaw, Poland
Time and Place: Every two years—summer. Ophthalmic Clinic, Oczki 6, Warsaw

ROYAL SOCIETY OF MEDICINE, SECTION OF OPHTHALMOLOGY
President: Montague Hine, F.R.C.S.
Secretaries: Arthur Lister, F.R.C.S., 56 Wimpole Street, London, W.1., England
H. E. Hobbs, F.R.C.S., 129 Harley Street, London, W.1., England

SAO PAULO SOCIETY OF OPHTHALMOLOGY
President: Dr. Durval Prado
Secretary: Dr. Rubens Belfort Mattos, Rua B. Stapetininga, 29 F-3° andar, Sao Paulo, Brazil

SCOTTISH OPHTHALMOLOGICAL CLUB
President: Dr. E. H. Cameron
Secretary: Dr. John Marshall, 11 Clairmont Gardens, Glasgow, C.3, Scotland
Time and Place: Last Saturday of March and October, Edinburgh and Glasgow, in rotation

SOCIEDAD ARGENTINA DE OFTALMOLOGIA
President: Dr. Jorge Malbran
Secretary: Dr. Jose Maria Roveda, Lezica 4472, Buenos Aires
Time and Place: Third Wednesday of every month. Buenos Aires

SOCIEDAD CHILENA DE OFTALMOLOGIA
President: Dr. Italo Martini
Secretary: Dr. Adrian Araya Costa, Renaca, no. 34, Santiago, Chile

SOCIEDAD COLOMBIANA DE OFTALMOLOGIA Y DE OTORHINOLARINGOLOGIA
President: Dr. Jorge Suarez-Hoyos, Carrera 5a, no. 13-39, Bogota, Colombia
Secretary: Dr. Francisco Arango
Time and Place: Second Tuesday of each month. Club Medico

SOCIEDAD CUBANA DE OFTALMOLOGIA
President: Dr. Oscar F. Horstmann
Secretary: Dr. Heriberto Buch Granados, Calle B No. 668 ent. 27 y 29, Vedado, Habana, Cuba
Time and Place: First Thursday bi-monthly. Malecon No. 61 Bajos, Havana, Cuba

SOCIEDAD MEXICANA DE OFTALMOLOGIA
President: Dr. Teodulo M. Agundis
Secretary: Dr. Jose Luis Arce, Viena 3-5, Mexico D. F., Mexico
Time and Place: 8:30 p.m., first Tuesday of each month, Gral. PRIM 47

SOCIEDAD NICARAGUENSE DE OFTALMOLOGIA
President: Dr. Ricardo Lacayo
Secretary: Dr. Gilberto Cuadra, Clinica Especializada, Managua, D. N., Nicaragua, C. A.

SOCIEDAD DE OFTALMOLOGIA DE CORDOBA
Chairman: Dante J. Yadarola
Secretary: Dr. Alberto Urrets Zavalia (hijo), 27 de Abril 255, Cordoba, Argentina

SOCIEDAD DE OFTALMOLOGIA DE GUADALAJARA
President: Dr. Elias Mendoza Gonzalez
Secretary: Dr. Jose Martin del Campo, Av. Juarez 211, Desp. 314, Guadalajara, Jal.
Place: Edificio Lutencia Despacho 101

SOCIEDAD OFTALMOLOGICA HISPANO AMERICANA
President: Dr. Soria
Secretary: Dr. Costi, 3. Calle Montalban, Madrid

SOCIEDAD DE OFTALMOLOGIA DEL LITORAL
President: Dr. Juan Manuel Vila Ortiz, Cordoba 1915, Rosario, Argentina
Secretary: Dr. Carlos M. Soto
Time and Place: Last Sunday in every month. Rosario

SOCIEDAD OFTALMOLOGICA DE VALPARAISO
President: Prof. Dr. Jean H. Thierry
Secretary-Treasurer: Dr. Jorge Oyarzun O, Hospital de Ojos, Calle Blas, Cuevas, Valparaiso

SOCIEDAD PERUANA DE OTO-RINO-LARINGOLOGIA Y OFTALMOLOGIA
President: Dr. Enrique Cipriani V., Pasaje Olaya 156, Lima, Peru
Secretario General: Dr. Enrique Haro
Secretario de Actas: Dr. Alberto Castillo R.

SOCIEDADE BRASILEIRA DE OFTALMOLOGIA
President: Dr. Paulo C. Pimental
First Secretary: Dr. Pedro Moacyr de Aguiar, Ladeira Santa Thereza 136, Apt. 101, Rio de Janeiro
Second Secretary: Dr. Luiz Enrico Ferreira
Time: Third Friday of every month from April to December

SOCIEDADE DE OFTALMOLOGIA DEL NORTE
President: Dr. Jorge Luis Castillo
Secretary: Dr. Felix Berman, San Lorenzo 345, Tucuman, Argentina
Place: Mendoza 421, Tucuman

SOCIEDADE DE OFTALMOLOGIA DE MINAS GERAES
President: Dr. Amelio Bonfioli
Secretary: Dr. Mariana Noronha, Pauso Alegre 1150, Belo Horizonte, Est. Minas Geraes

SOCIEDADE DE OFTALMOLOGIA E OTO-RHINO-LARYNGOLOGIA DE BAHIA
President: Dr. Theonilo Amorim, Barra Avenida, Bahia, Brazil
Secretary: Dr. Adroaldo de Alencar

SOCIEDADE DE OFTALMOLOGIA E OTO-RINO-LARINGOLOGIA DO RIO GRANDE DO SUL
President: Dr. Mario Araujo Azambuja
First Secretary: Dr. Humberto Lubisco, Rua Donna Laura 45, Porto Alegre, Est., Rio Grande do Sul
Second Secretary: Dr. Ivo Kuhl

SOCIEDADE DE OFTALMOLOGIA DE SAO PAULO
President: Dr. Paulo Braga Magalhaes
General Secretary: Dr. Paulo Aranha de Azevedo, Xavier de Toledo 71,1° and., Sao Paulo
First Secretary: Dr. Alfredo Rocco

SOCIEDADE DE OTO-RINO-LARINGOLOGIA DO RIO DE JANIERO
President: Dr. Aloysio Novis
Secretaries: Dr. Rubens Cabral, Rua Paissandu 73, Rio de Janeiro, Brazil
Dr. Mairelles Vieira

SOCIETA OFTALMOLOGICA ITALIANA

President: Prof. Giuseppe Ovio
Secretary: Prof. E. Leonardi, Piazza degli Eroi, 11 Roma, Italy
Place: Roma Piazza degli Eroi 11

SOCIETE BELGE D'OPHTALMOLOGIE

President: Dr. L. Weekers
Secretary-General: Dr. M. Appelmans, 179 avenue Reulens, Louvain, Belgium
Time: Last Sunday of February, June and November

SOCIETE D'OTO-RHINO-LARYNGOLOGIE

Administrateur: G. Raimond, 17et19, Rue de Buci, Paris (VI.e) France

SOCIETY OF SWEDISH OPHTHALMOLOGISTS

President: Prof. S. Larsson
Secretary: Dr. K. O. Granstrom, Sodermalmstorg 4, Stockholm, Sweden

SOUTHERN OPHTHALMOLOGICAL SOCIETY, ENGLAND

President: Campbell Shaw, M. R. C. S.
Hon. Secretary and Treasurer: Nigel Cridland, D.M., D.O., 25 Craneswater Park, Southsea, England

NATIONAL

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

President: Dr. James Milton Robb
Executive Secretary-Treasurer: Dr. William L. Benedict, 100 First Avenue Building, Rochester, Minn.
Time and Place: October 11-16, 1953, Chicago

AMERICAN ASSOCIATION OF EYE, EAR, NOSE AND THROAT SOCIETY SECRETARIES

President: Dr. M. E. Alvaro
Secretary-Treasurer: Dr. Daniel S. DeStio, Highland Building, Pittsburgh 6, Pa.

AMERICAN LARYNGOLOGICAL ASSOCIATION

President: Dr. Caroline D. New
Secretary: Dr. Louis H. Clerf, 1530 Locust, Philadelphia 2, Pa.
Time and Place: April 26-27, 1953, The Roosevelt, New Orleans, La.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, INC.

President: Dr. Francis E. LeJeune
Secretary: Dr. C. Stewart Nash, 708 Medical Arts Building, Rochester 7, N. Y.
Time and Place: April 28-30, 1953, The Roosevelt, New Orleans, La.

EASTERN SECTION
Vice-President: Dr. Irl H. Blaisdell
Secretary: Dr. Francis W. Davison, Geisinger Memorial Hospital, Danville, Pa.
Time and Place: January 7, 1953, Hotel Syracuse, Syracuse, N. Y.

MIDDLE SECTION
Vice-President: Dr. Henry L. Williams
Secretary: Dr. Walter H. Theobald, 307 North Michigan Avenue, Chicago 1, Ill.
Time and Place: January 19, 1953, The Drake, Chicago, Ill.

SOUTHERN SECTION:
Vice-President: Dr. W. W. Wilkerson, Jr.
Secretary: Dr. James W. McLaurin, Raymond Building, Baton Rouge 6, La.
Time and Place: January 12, 1953, Andrew Jackson Hotel, Nashville, Tenn.

WESTERN SECTION:
Vice-President: Dr. Alden H. Miller
Secretary: Dr. Harold Boyd, 1136 West Sixth Street, Los Angeles, Calif.
Time and Place: January 24, 1953, The Elks Club, Los Angeles, Calif.

AMERICAN MEDICAL ASSOCIATION, SCIENTIFIC ASSEMBLY, SECTION ON OPHTHALMOLOGY

Chairman: Dr. Edwin B. Dunphy
Secretary: Dr. Trygve Gundersen, 101 Bay State Road, Boston, Mass.

AMERICAN MEDICAL ASSOCIATION, SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

Chairman: Dr. James Milton Robb
Secretary: Dr. Sam H. Sanders, 1089 Madison Avenue, Memphis 3, Tenn.

AMERICAN OPHTHALMOLOGICAL SOCIETY

President: Dr. Conrad Berens
Secretary-Treasurer: Dr. Maynard C. Wheeler, 30 W. 59th Street, New York 19, N. Y.
Time and Place: May 28-30, 1953, The Homestead, Hot Springs, Va.

AMERICAN OTOLOGICAL SOCIETY

President: Dr. Albert C. Furstenberg
Secretary: Dr. John R. Lindsay, 950 East 59th Street, Chicago 37, Ill.
Time and Place: May 1-2, 1953, Roosevelt Hotel, New Orleans, La.

AMERICAN OTORHINOLOGIC SOCIETY FOR THE ADVANCEMENT OF PLASTIC AND RECONSTRUCTIVE SURGERY

President: Dr. Norman N. Smith
Secretary: Dr. Joseph G. Gilbert, 1404 President Street, Brooklyn 13, N. Y.

AMERICAN SOCIETY OF OPHTHALMOLOGIC AND OTOLARYNGOLOGIC ALLERGY

President: Dr. William H. Evans
Secretary-Treasurer: Dr. Joseph W. Hampsey, 806 May Building, Pittsburgh 22, Pa.
Time and Place: Annual meeting, October 16, 1953, Chicago

ASSOCIATION FOR RESEARCH IN OPHTHALMOLOGY, INC.

Chairman: Dr. Walter H. Fink
Secretary-Treasurer: Dr. James H. Allen, 1430 Tulane Avenue, New Orleans, La.

CANADIAN MEDICAL ASSOCIATION, SECTION ON OPHTHALMOLOGY

President: Dr. R. G. C. Kelly
Secretary: Dr. J. Clement McCulloch, 380 Medical Arts Building, Toronto, Ont.

CANADIAN OPHTHALMOLOGICAL SOCIETY

President: Dr. Kenneth B. Johnston
Secretary: Dr. R. G. C. Kelly, 113 St. Clair Avenue W., Toronto 5, Ont., Canada

CANADIAN OTOLARYNGOLOGICAL SOCIETY

President: Dr. Jules Brahy
Secretary: Dr. W. Ross Wright, 361 Regent Street, Fredericton, New Brunswick

NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS, INC.
President: Mr. Mason H. Bigelow
Secretary: Dr. Franklin M. Foote, 1790 Broadway, New York 19, N. Y.

REGIONAL

ARK-LA-TEX OTO-OPHTHALMIC SOCIETY
President: Dr. Joel A. Wilkinson
Secretary: Dr. Frank L. Bryant, 2622 Greenwood, Shreveport, La.
Time and Place: First Monday of month, September through June. Shreveport Club

HAWAII EYE, EAR, NOSE AND THROAT SOCIETY
Chairman: Dr. John P. Frazer
Secretary: Dr. C. W. Trexler, Young Hotel Building, Honolulu, T. H.
Time and Place: Each Thursday (dinner meetings) 6:30 p.m., Pacific Club, Honolulu

INTER-MOUNTAIN OTO-OPHTHALMOLOGICAL SOCIETY
President: Dr. Robert G. Snow
Secretary-Treasurer: Dr. Whitney J. Haight, 1015 Boston Building, Salt Lake City 1, Utah
Time and Place: Third Monday of each month, September through May. University Club, 136 East South Temple, Salt Lake City

LOUISIANA-MISSISSIPPI OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETY
President Dr. W. L. Hughes
Secretary: Dr. Edley H. Jones, 1301 Washington Street, Vicksburg, Miss.
Time and Place: May 11, 1953, Edgewater Gulf Hotel, Edgewater, Miss.

NASSAU OPHTHALMOLOGICAL SOCIETY
President: Dr. A. Milton Goldman
Secretary: Dr. Ward L. Mould, 131 Fulton Avenue, Hempstead, N. Y.
Time and Place: Fourth Monday in February, April, September and November at 7:30 p.m. at Meadow brook Hospital, Hempstead, N. Y.

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY
President: Dr. Benjamin A. Sachs
Secretary: Dr. Garrett L. Sullivan, 101 Bay State Road, Boston 15, Mass.
Time and Place: Third Wednesday of each month, November through April. Massachusetts Eye and Ear Infirmary

NEW ENGLAND OTO-LARYNGOLOGICAL SOCIETY
President: Dr. Leighton F. Johnson
Secretary-Treasurer: Dr. Burton E. Lovesey, 76 Bay State Road, Boston 15, Mass.
Time and Place: Quarterly. Massachusetts Eye and Ear Infirmary, 243 Charles Street, Boston

PACIFIC COAST OTO-OPHTHALMOLOGICAL SOCIETY
President: Dr. C. Allen Dickey
Secretary-Treasurer: Dr. Howard P. House, 1136 West Sixth Street, Los Angeles 14, Calif.
Time and Place: 1953, Los Angeles, Calif.

SAGINAW VALLEY ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. William B. Hubbard
Secretary: Dr. Frank A. Ware, 514 Genesee Bank Bldg., Flint, Mich.
Time and Place: Second Tuesday evening of each month, except summer months. Bancroft Hotel, Saginaw

SIOUX VALLEY EYE AND EAR ACADEMY
President: Dr. James Reeder, Jr.
Secretary-Treasurer: Dr. W. P. Davey, 627-632 Frances Building, Sioux City, Iowa

SOUTHERN MEDICAL ASSOCIATION, SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY
Chairman: Dr. Edley H. Jones
Secretary: Dr. F. A. Holden, Medical Arts Building, Baltimore, Md.
Time and Place: November 10-13, 1952, Miami, Fla.

TIDEWATER OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETY
President: Dr. C. C. Cooley
Secretary: Dr. J. G. Sellers, 413 Medical Arts Building, Norfolk, Va.

WISCONSIN-UPPER MICHIGAN SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. H. D. McEachran
Secretary: Dr. G. L. McCormick, 650 South Central Avenue, Marshfield, Wis.

STATE

ALABAMA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. Ralph Clements
Secretary-Treasurer: Dr. David McCoy, 51 Woodward Building, Birmingham, Ala.

ARKANSAS STATE MEDICAL SOCIETY, EYE, EAR, NOSE AND THROAT SECTION
President: Dr. C. G. Hinkle
Secretary: Dr. K. W. Cosgrove, 113 East Capitol Avenue, Little Rock, Ark.

CALIFORNIA MEDICAL ASSOCIATION, EYE, EAR, NOSE AND THROAT SECTION
Chairman: Dr. Robert C. McNaught
Secretary: Dr. Alfred R. Robbins, 1930 Wilshire Blvd., Los Angeles, Calif.

COLORADO OPHTHALMOLOGICAL SOCIETY
President: Dr. Fritz Nelson
Secretary: Dr. James C. Strong, Jr., 550 Metropolitan Building, Denver, Colo.
Time and Place: First Saturday of each month, October through May, University of Colorado School of Medicine, Denver

COLORADO OTOLARYNGOLOGICAL SOCIETY
President: Dr. John Bradley
Secretary: Dr. Robert C. Shattuck, 406 Republic Building, Denver, Colo.
Time and Place: First Saturday of each month, October through May, University of Colorado School of Medicine, Denver

FLORIDA SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. Charles C. Grace
Secretary-Treasurer: Dr. Carl S. McLemore, 1202 South Kuhl Avenue, Orlando, Fla.

GEORGIA SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. Stacy C. Howell
Secretary: Dr. Alton V. Hallum, 245 Doctors Building, Atlanta 3, Ga.

INDIANA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. E. L. Van Buskirk
Secretary-Treasurer: Dr. John R. Swan, 23 East Ohio Street, Indianapolis 4, Ind.

IOWA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. Byron Merkel
Secretary: Dr. Carl A. Noe, 601-611 Highley Building, Cedar Rapids, Iowa

KANSAS STATE MEDICAL SOCIETY, SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. N. L. Francis
Secretary: Dr. W. D. Pitman, First National Bank Building, Pratt, Kan.

MASSACHUSETTS MEDICAL SOCIETY, SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY
Chairman: Dr. Edwin B. Dunphy
Secretary: Dr. John E. McKeigue, 403 Commonwealth Avenue, Boston 15, Mass.

MICHIGAN STATE MEDICAL SOCIETY, SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY
Chairman: Dr. J. E. Croushore (Otolaryngology)
Co-Chairman: Dr. J. C. Gemeroy (Ophthalmology)
Secretary: Dr. R. W. Teed, 215 South Main, Ann Arbor, Mich. (Otolaryngology)
Co-Secretary: Dr. F. B. Heckert, 1105 Bank of Lansing Building, Lansing, Mich. (Ophthalmology)

MICHIGAN TRIOLOGICAL SOCIETY
President: Dr. William D. Irwin
Secretary: Dr. V. E. Cortopassi, 324 South Washington Avenue, Saginaw, Mich.
Time: Second Thursday of November, December, March, April and May

MINNESOTA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. K. A. Phelps
Secretary-Treasurer: Dr. R. W Holmen, Lowry Medical Arts Building, St. Paul 2, Minn.
Time and Place: Second Friday of each month, November through May. Alternating, Minnesota Club, St. Paul, and Minneapolis Club, Minneapolis

MONTANA ACADEMY OF OTO-OPHTHALMOLOGY
President: Dr. Fritz D. Hurd
Secretary-Treasurer: Dr. H. L. Casebeer, Pennsylvania Building, 44 West Park Street, Butte, Mont.
Time and Place: February 22-23, 1953, Butte, Mont.

NEBRASKA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. Maynard A. Wood
Secretary-Treasurer: Dr. Paul L. Peterson, 702 Sharp Building, Lincoln, Neb.

NEW JERSEY OPHTHALMOLOGICAL SOCIETY
President Dr. A. M. K. Maldeis
Secretary: Dr. A. Russell Sherman, 671 Broad Street, Newark, N. J.

NEW MEXICO OPHTHALMOLOGIC SOCIETY
President: Dr. A. L. Schonberg
Secretary: Dr. Howard Peck, Medical Arts Square, Albuquerque, N. M.
Time: Meetings four times a year

NORTH CAROLINA EYE, EAR, NOSE AND THROAT SOCIETY
President: Dr. MacLean B. Leath
Secretary-Treasurer: Dr. George B. Ferguson, 1110 West Main St., Durham, N. C.

OREGON ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. Richard S. Fixott
Secretary: Dr. George E. Chamberlain, 909 Medical Dental Building, Portland 5, Ore.
Time and Place: Third Tuesday each month September through May. Old Heathman Hotel, Portland

PENNSYLVANIA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. Samuel T. Buckman
Secretary: Dr. Daniel S. DeStio, Highland Building, Pittsburgh 6, Pa.
Time: Annually

PUERTO RICO MEDICAL ASSOCIATION, SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. Luis J. Fernandez
Secretaries: Dr. Ricardo F. Fernandez, P.O. Box 2206, San Juan 10, Puerto Rico (Ophthalmology)
Dr. Carlos E. Munoz MacCormick, P.O. Box 604, San Juan, Puerto Rico (Otolaryngology)
Time and Place: Bimonthly. Puerto Rico Medical Association Building

SOUTH CAROLINA SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. Thomas R. Gaines
Secretary-Treasurer: Dr. Roderick Macdonald, 330 East Main Street, Rock Hill, S. C.

TENNESSEE STATE ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. Roland H. Myers
Secretary-Treasurer: Dr. John T. Bryan, 2105 Hayes Street, Nashville, Tenn.
Time: Annually

TEXAS SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. J. Charles Dickson
Secretary: Dr. Lyle Hooker, Esperson Building, Houston, Texas

VIRGINIA SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. A. D. Morgan
Secretary-Treasurer: Dr. G. Slaughter Fitz-Hugh, 104 East Market St., Charlottesville, Va.
Time and Place: Fall Clinical Session: Ophthalmology, November 18-19, 1952; Otolaryngology, November 20-21, 1952, Charlottesville, Va.; Spring meeting, May 1953, Hot Springs, Va.

WASHINGTON STATE MEDICAL ASSOCIATION, SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. George A. Hanson
Secretary-Treasurer: Dr. Claude K. Miller, Widby Building, Wenatchee, Wash.

WEST VIRGINIA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. Melvin K. McGehee
Secretary-Treasurer: Dr. Frederick C. Reel, Medical Arts Building, Charleston, W. Va.
Time and Place: May 2-3, 1953, Hot Springs, Va. Joint meeting with Virginia Society

LOCAL

ACADEMY OF MEDICINE OF NORTHERN NEW JERSEY, SECTION ON EYE, EAR, NOSE AND THROAT
Chairman: Dr. William F. Krone
Secretary: Dr. Francis J. Grant, 1224 Salem Avenue, Hillside, N. J.
Time and Place: 8:45 p.m., second Monday of the month. The Academy of Medicine, 91 Lincoln Park, South, Newark

AKRON ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. C. R. Anderson
Secretary-Treasurer: Dr. A. L. Peter, 406 Akron Savings and Loan Building, Akron, Ohio
Time and Place: 6:30 p.m., first Monday in January March, May and November. Akron City Club

ALUMNI ASSOCIATION NEW YORK EYE AND EAR INFIRMARY
President: Dr. W. T. Boland
Secretary-Treasurer: Dr. Hunter Romaine, 111 East 65th Street, New York, N. Y.

ATLANTA EYE, EAR, NOSE AND THROAT SOCIETY
President: Dr. F. Phinizy Calhoun, Jr.
Secretary-Treasurer: Dr. James T. King, 384 Peachtree Street N.E., Atlanta 3, Ga.
Time and Place: 7:30 p.m., fourth Monday of each month, October to May. Academy of Medicine

BALTIMORE CITY MEDICAL SOCIETY, OPHTHALMOLOGICAL SECTION
Chairman: Dr. M. Elliott Randolph
Secretary-Treasurer: Dr. Abraham Kremen, 2355 Eutaw Place, Baltimore 17, Md.
Time and Place: 8:00 p.m., fourth Thursday of every month October to May. Medical and Chirurgical Faculty, 1211 Cathedral St.

BIRMINGHAM EYE, EAR, NOSE AND THROAT SOCIETY
President: Each member, in alphabetical order.
Secretary: Dr. David A. McCoy, Woodward Building, Birmingham, Ala.
Time and Place: 6:30 p.m., second Tuesday of each month, September through May. Thomas Jefferson Hotel

BOSTON CITY HOSPITAL AURAL AND OPHTHALMIC ASSOCIATION
President: Dr. Joseph Nerbonne
Secretary: Dr. Benjamin Riseman, 41 Bay State Road, Boston 15, Mass.

BROOKLYN OPHTHALMOLOGICAL SOCIETY
President: Dr. Daniel K. Kravitz
Secretary-Treasurer: Dr. Louis Freimark, 256 Rochester Avenue, Brooklyn 13, N. Y.
Time and Place: 8 p.m., third Thursday in October, December, February and April. Medical Society of the County of Kings, 1313 Bedford Avenue

BUFFALO OPHTHALMOLOGIC CLUB
President: Dr. Milton A. Palmer
Secretary: Dr. Elizabeth P. Olmsted, 568 Lafayette Avenue, Buffalo 22, N. Y.
Time and Place: Second Thursday of each month, October through May. Park Lane

CENTRAL ILLINOIS SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. G. C. Otrich
Secretary-Treasurer: Dr. Alfred G. Schultz, 237 East State Street, Jacksonville, Ill.

CENTRAL NEW YORK EYE, EAR, NOSE AND THROAT SOCIETY
President: Dr. Donald E. Moore
Secretary-Treasurer: Dr. Lee R. Stoner, 1100 East Genesse Street, Syracuse 10, N.Y.

CHATTANOOGA EYE, EAR, NOSE AND THROAT SOCIETY
Chairman and Secretary: Dr. Willard H. Steele, Jr., 552 McCallie Avenue, Chattanooga, Tenn.
Time and Place: 6:30 p.m., fourth Thursday in each month, October through May. Mountain City Club

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY
President: Dr. Arthur J. Coombs
Secretary: Dr. Lawrence J. Lawson, 636 Church Street, Evanston, Ill.

CHICAGO OPHTHALMOLOGICAL SOCIETY
President: Dr. William F. Hughes, Jr.
Secretary-Treasurer: Dr. Gail R. Soper, 636 Church Street, Evanston, Ill.
Time and Place: 7:30 p.m., third Monday of each month, October to May. Chicago-Illini Union, 715 S. Wood Street

CINCINNATI OPHTHALMOLOGIC CLUB
Presidium: Dr. Donald J. Lyle, Dr. Karl W. Ascher, Dr. Josef D. Weintraub
Secretary: Dr. Josef D. Weintraub, 715 Provident Bank Building, Seventh and Vine Streets, Cincinnati, Ohio
Time and Place: Second Wednesday night of month, November through May. University Club, Fourth and Broadway

CINCINNATI OTOLARYNGOLOGIC SOCIETY
President: Dr. Raymond L. Hilsinger
Secretary-Treasurer: Dr. Stephen P. Hogg, 556 Doctors' Building, Cincinnati 2, Ohio
Time and Place: 6:30 on the third Monday of each month except July, August, September and December. University Club.

CLEVELAND OPHTHALMOLOGICAL CLUB
President: Dr. Lorand V. Johnson
Secretary-Treasurer: Dr Irwin H. Stolzar, 831 National City Bank Building, Cleveland 14, Ohio
Time and Place: Second Tuesday of November, January, February and April. University Club, Cleveland, Ohio

COLLEGE OF PHYSICIANS OF PHILADELPHIA, SECTION ON OPHTHALMOLOGY
Chairman: Dr. George F. J. Kelly
Clerk: Dr. M. Luther Kauffman, Medical Arts Building, Jenkintown, Pa.
Time and Place: 8:15 p.m., third Thursday of every month, October through April. College of Physicians Building

CORPUS CHRISTI EYE, EAR, NOSE AND THROAT SOCIETY
President: Dr. Rex E. House
Secretary-Treasurer: Dr. L. David Wright, Thomas-Spann Clinic, 1546 South Brownlee, Corpus Christi, Texas
Time and Place: First Wednesday of each month. La Louisiane

DALLAS ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. W. B. Wilkinson
Secretary: Dr. Claude D. Winborn, Medical Arts Building, Dallas 1, Texas
Time and Place: First Tuesday of each month. Melrose Hotel

DES MOINES ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. J. H. McNamee
Secretary-Treasurer: Dr. H. H. Gurau, 213 Bankers Trust Building, Des Moines, Iowa
Time and Place: 6:00 p.m., fourth Monday of each month, September through May. Des Moines Club

DETROIT OPHTHALMOLOGICAL CLUB
Secretary-Treasurer: Dr. Frederick A. Lauppe, 1249 David Whitney Building, Detroit 26, Mich.

DETROIT OPHTHALMOLOGICAL SOCIETY
President: Dr. Arthur S. Hale
Secretary: Dr. Arthur P. Wilkinson, 974 Fisher Building, Detroit 2, Mich.
Time and Place: Fourth Thursday of each month, November through April, at L'Aiglon, Fisher Building

DETROIT OTO-LARYNGOLOGICAL SOCIETY

President: Dr. B. F. Glowacki
Secretary-Treasurer: Dr. John R. Birch, 1010 Maccabees Building, Detroit 2, Mich.
Time and Place: Third Wednesday of each month, September to May. Wayne County Medical Society Building

EASTERN NEW YORK EYE, EAR, NOSE AND THROAT ASSOCIATION

President: Dr. Harry Miller
Secretary-Treasurer: Dr. Frank Furlong, 713 Union Street, Schenectady, N. Y.
Time and Place: 8 p.m., first Thursday of month, October to June. Albany, Troy, Schenectady, rotating monthly

FORT WORTH EYE, EAR, NOSE AND THROAT SOCIETY

President: Dr. Hal Maxwell
Secretary: Dr. William Skokan, 1708 Medical Arts Building, Fort Worth 2, Texas
Time and Place: 6:30 p.m., first Friday of each month, except July and August. St. Joseph's Hospital

HOUSTON ACADEMY OF MEDICINE, OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

President: Dr. Lyle Hooker
Secretary: Dr. Claude C. Cody, III, 1304 Walker Avenue, Houston 2, Texas
Time: Second Thursday of each month, October through June

EYE, EAR, NOSE AND THROAT SOCIETY OF HUDSON COUNTY

President: Dr. A. V. Saradarian
Secretary-Treasurer: Dr. A. J. Magee, 921 Bergen Avenue, Jersey City 6, N. J.
Time and Place: Second Monday of each month (September through May), Jersey City Medical Center

INDIANAPOLIS OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SOCIETY

President: Dr. Marlow W. Manion
Secretary-Treasurer: Dr. Lewis E. Morrison, 503 Hume Mansur Building, Indianapolis 4, Ind.
Time and Place: 6:30 p.m., second Thursday of each month, November to May. Indianapolis Athletic Club

KANSAS CITY SOCIETY OF O. O. R. L.

President: Dr. A. W. McAlester, III
Secretary: Dr. Barnard C. Trowbridge, 411 Alameda Road, Kansas City 2, Mo.
Time and Place: Third Thursday of the month, November through May. Hotel President, 14th and Baltimore

LONG BEACH EYE, EAR, NOSE AND THROAT SOCIETY

President: Dr. Edmund D. Godwin
Secretary: Dr. James V. Keipp, 110 Pine Avenue, Long Beach 2, Calif.
Time and Place: 6:00 p.m., monthly, September through May. Seaside Memorial Hospital

LOS ANGELES OPHTHALMOLOGICAL SOCIETY

President: Dr. Deane C. Hartman
Secretary: Dr. Daniel B. Esterly, 104 North Madison Avenue, Pasadena 1, Calif.
Time and Place: First Thursday of each month, September through June. Los Angeles County Medical Society Building, 1925 Wilshire Boulevard

LOS ANGELES SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

President: Dr. Victor Goodhill
Secretary: Dr. Orwyn Ellis, 523 West Sixth Street, Los Angeles 14, Calif.
Time and Place: 6:00 p.m., fourth Monday of each month, September through May. Los Angeles County Medical Association Building, 1925 Wilshire Boulevard

LOUISVILLE EYE AND EAR SOCIETY

President: Dr. N. H. Burkhead
Secretary-Treasurer: Dr. A. H. Keeney, Heyburn Building, Louisville 2, Ky.
Time and Place: Dinner meetings at 6:30 p.m. on the second Thursdays of alternate months, September through May. Mayflower Hotel, 425 W. Ormsby Street

MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA, SECTION ON OPHTHALMOLOGY

President: Dr. Joseph Dessoff
Secretary-Treasurer: Dr. J. Spencer Dryden, 1835 Eye Street Northwest, Washington 6, D. C.
Time: November 4, 1952; January 6 and May 5, 1953

MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA, SECTION ON OTOLARYNGOLOGY

Chairman: Dr. Irvin Feldman
Secretary: Dr. John Louzan, 1801 Eye Street N. W., Washington 6, D. C.
Time and Place: 7:00 p.m., third Tuesday in October, November, January, March and May. Army and Navy Club, 17th and Farragut Square, N.W.

MEMPHIS SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

Chairman: Each member, in alphabetical order
Secretary: Dr. Roland H. Myers, 1720 Exchange Building, Memphis, Tenn.
Time and Place: Second Tuesday in each month, September through May. Memphis Eye, Ear, Nose and Throat Hospital

MILWAUKEE OTO-OPHTHALMIC SOCIETY

President: Dr. J. P. Wild
Secretary-Treasurer: Dr. Howard High, 324 East Wisconsin Avenue, Milwaukee 2, Wis.
Time and Place: 6:30 p.m., fourth Tuesday of each month, October to May. Athletic Club

MONTGOMERY COUNTY MEDICAL SOCIETY, SECTION ON EYE, EAR, NOSE AND THROAT

President: Dr. Robert A. Bruce
Secretary-Treasurer: Dr. L. N. Shroder, 144 West Fourth Street, Greenville, Ohio
Time and Place: First Tuesday of November, February, March and May. Dayton Country Club

MONTREAL OPHTHALMOLOGICAL SOCIETY

President: Dr. J. V. V. Nicholls
Secretary: Dr. R. Charbonneau, 958 Sherbrooke St. E., Montreal, Que., Canada
Time: Second Thursday of October, December, February and April

NASHVILLE ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

President: Dr. John W. Harned, Jr.
Secretary-Treasurer: Dr. Herbert Duncan, Bennie Dillon Building, Nashville, Tenn.
Time and Place: Third Monday evening of month, October through May. James Robertson Hotel

NEW YORK ACADEMY OF MEDICINE, SECTION ON OPHTHALMOLOGY

Chairman: Dr. James W. Smith
Secretary: Dr. A. Gerard De Voe, 30 West 59th St., New York, N. Y.
Time and Place: Third Monday of the month, October through May. New York Academy of Medicine

NEW YORK SOCIETY FOR CLINICAL OPHTHALMOLOGY

President: Dr. Abraham L. Kornzweig
Secretary: Dr. Leon H. Ehrlich, 211 Central Park West, New York 24, N. Y.
Time and Place: First Monday of the month, October to May. New York Academy of Medicine

NUECES COUNTY EYE, EAR, NOSE AND THROAT SOCIETY

President: Dr. C. N. Meador
Secretary: Dr. Rex C. House, 228 Medical-Dental Building, Corpus Christi, Texas
Time and Place: 7:30 p.m., second Monday of each month, October through May. Dusty's, 1739 South Brownlee Street, Corpus Christi, Texas

OKLAHOMA CITY ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. C. W. McClure
Secretary: Dr. Richard A. Clay, 416 Northwest 13th Street, Oklahoma City, Okla.
Time and Place: First Tuesday of each month. University Hospital, 800 Northeast 13th Street, Oklahoma City

OMAHA AND COUNCIL BLUFFS OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETY
President: Dr. Thomas T. Smith
Secretary-Treasurer: Dr. G. T. Alliband, 1020 Medical Arts Building, Omaha, Neb.
Time and Place: Dinner meeting third Wednesday monthly, October to May. Omaha Club

PHILADELPHIA COUNTY MEDICAL SOCIETY, EYE SECTION
Chairman: Dr. Alfred Cowan
Secretary: Dr. John W. Deichler, 301 South 21st Street, Philadelphia 3, Pa.
Time: First Thursday of each month, November through April

PHILADELPHIA LARYNGOLOGICAL SOCIETY
President: Dr. Thomas F. Furlong, Jr.
Secretary: Dr. John J. O'Keefe, 255 South 17th Street, Philadelphia 3, Pa.

PITTSBURGH ACADEMY OF MEDICINE
President: Dr. John S. Plumer
Secretary: Dr. Samuel D. Evans, 1501-2 Park Building, Pittsburgh 22, Pa.
Time and Place: 8:00 p.m., fourth Monday of each month, October through May. Pittsburgh Academy, 322 North Craig Street

PITTSBURGH OTOLOGICAL SOCIETY
President: Dr. Daniel S. DeStio
Secretary: Dr. George C. Schein, 634 Washington Road, Pittsburgh, Pa.
Time and Place: Bimonthly

PUGET SOUND ACADEMY OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY
President: Dr. H. Frederick Thorlakson
Secretary-Treasurer: Dr. Willard F. Goff, 432 Stimson Building, 1215 Fourth Avenue, Seattle 1, Wash.
Time and Place: Third Tuesday of each month. Medical-Dental Building, Seattle

READING EYE, EAR, NOSE AND THROAT SOCIETY
President: Dr. J. Van Dyke Quereau
Secretary: Dr. Benjamin F. Souders, 424 Walnut Street, Reading, Pa.
Time and Place: Third Wednesday of each month, September to July (dinner meetings). Wyomissing Club

RICHMOND, VIRGINIA, EYE, EAR, NOSE AND THROAT SOCIETY
President: Dr. Mason Smith
Secretary-Treasurer: Dr. Charles N. Romaine, 1001 West Franklin Street, Richmond 20, Va.
Time and Place: First Tuesday of January, March, May and October. Commonwealth Club

ST. LOUIS COUNTY MEDICAL SOCIETY, SECTION ON EYE, EAR, NOSE AND THROAT
Chairman: Dr. Anderson C. Hilding
Secretary: Dr. James P. Tetlie, 626 Medical Arts Building, Duluth, Minn.
Time and Place: 6:00 to 8:00 p.m., preceding the monthly St. Louis County Medical Society meeting St. Mary's Hospital, Duluth

EAR, NOSE AND THROAT CLUB OF ST. LOUIS
Chairman: Dr. Millard F. Arbuckle
Secretary: Dr. Harry N. Glick, 1504 South Grand Boulevard, St. Louis 4, Mo.
Time and Place: Third Wednesday in November, January, March and May, University Club Building

ST. LOUIS OPHTHALMIC SOCIETY
President: Dr. Edmond B. Alis
Secretary: Dr. Benjamin Milder, 539 North Grand Avenue, St. Louis 3, Mo.
Time and Place: 8:00 p.m., fourth Friday of each month, October through April, except December. Elliott Auditorium, McMillan Hospital

SAN ANTONIO SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. George H. Brunner
Secretary: Dr. Jack B. Lee, 607 New Moore Building, San Antonio, 5, Texas
Time: Second Tuesday of each month, September through May

SAN FRANCISCO COUNTY MEDICAL SOCIETY, SECTION ON EYE, EAR, NOSE AND THROAT
Chairman: Dr. W. E. Borley, 655 Sutter Street, San Francisco, Calif.
Secretary: None
Time and Place: Fourth Tuesday of each month, except July, August and December. San Francisco County Medical Society Building

SPOKANE ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
President: Dr. Phil Greene
Secretary: Dr. Cornelius E. Hagan, Jr., 508 Old National Bank Building, Spokane, Wash.
Time and Place: Fourth Tuesday of each month, September through May. Paulsen Medical and Dental Building

SUPERIOR CALIFORNIA EYE CLUB
President: Dr. Theodore Holstein
Secretary: Dr. John Berg, 436 Medico-Dental Bldg., Sacramento 14, Calif.
Time: Every third Thursday, eight months of the year

TOLEDO EYE, EAR, NOSE AND THROAT SOCIETY
President: Dr. Kenneth F. Schoenrock
Secretary: Dr. L. Reed Cranmer, 316 Michigan Street, Toledo 2, Ohio
Time and Place: Third Tuesday of each month, November through May, Toledo Club

TORONTO ACADEMY OF MEDICINE, SECTION OF OPHTHALMOLOGY
Chairman: Dr. Joseph C. Hill
Secretary: Dr. Harold R. Sniderman, 220 Bloor Street West, Toronto 5, Ont., Canada
Time and Place: Second Monday night of November, January, February and March. Academy of Medicine, Toronto

WESTERN PENNSYLVANIA EYE, EAR, NOSE AND THROAT SOCIETY
President: Dr. Joseph W. Raymond
Secretary-Treasurer: Dr. F. E. Murdock, 28½ West Scribner Avenue, DuBois, Pa.
Time: Biannually, Third Thursdays of April and September

WILKES-BARRE OPHTHALMOLOGICAL SOCIETY
President: Dr. Vincent Gallizzi
Secretary: Dr. Samuel T. Buckman, 70 South Franklin Street, Wilkes-Barre, Pa.
Time and Place: Last Tuesday of each month, October through May, except December. Luzerne County Medical Society Library, 130 South Franklin Street

HEARING AIDS ACCEPTED BY THE COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION THE AMERICAN MEDICAL ASSOCIATION

As of November 1, 1952

Audiotone Model 11
Mfr. AUDIO COMPANY OF AMERICA
1303 N. Sixth St.
Phoenix, Ariz.

Audicon Models 400 & 415
Mfr. NATIONAL EARPHONE CO., INC.
20-22 Shipman St.
Newark 2, N. J.

Audivox Model Super 67
Mfr. AUDIVOX, INC.
123 Worcester St.
Boston 18

Aurex Models L & M
Mfr. AUREX CORP.
1117 N. Franklin St.
Chicago 10

Beltone Symphonette Model
Beltone Mono-Pac Model M
Mfr. BELTONE HEARING AID CO.
1450 W. Nineteenth St.
Chicago 8

Cleartone Models 500 & 700
Cleartone Regency Model
Mfr. AMERICAN SOUND PRODUCTS, INC.
1303 S. Michigan Ave.
Chicago 5

Dahlberg Model D-1
Dahlberg Junior Model D-2
Mfr. THE DAHLBERG CO.
Golden Valley
Minneapolis 22

Dysonic Model I
Mfr. DYNAMIC HEARING AIDS, INC.
149 Church St.
New York 7

Electrocar Model C
Mfr. AMERICAN EARPHONE CO., INC.
10 E. Forty-third St.
New York 17

Gem Models V-35 & V-60
Mfr. THE GEM EAR PHONE CO., INC.
50 West Twenty-ninth St.
New York 1

Goldentone Models 25, 69 & 97
Mfr. JOHNSTON HEARING AID MFR. CO.
708 W. Fortieth St.
Minneapolis 8
Distr: GOLDENTONE CORPORATION
708 W. Fortieth St.
Minneapolis 8

Maico UE Atomeer
Maico Quiet Ear Models G & H
Maico Model J
Mfr. THE MAICO CO., INC.
21 N. Third St.
Minneapolis 1

Mears (Crystal & Magnetic) Aurophone Model 200
1947-Mears Aurophone Model 98
Mfr. MEARS RADIO HEARING DEVICE CORP.
1 W. Thirty-fourth St.
New York 1

Micronic Model 303
Micronic Model "Mercury"
Micronic Star Model
Mfr. AUDIVOX, INC.
123 Worcester St.
Boston 18

Microtone Audiomatic T-5
Microtone Classic Model T-9
Microtone Models T-10, T-612 & 45
Mfr. THE MICROTONE CO.
Ford Parkway on Mississippi
St. Paul 1

National Cub Model (C)
National Model D (Duplex)
National Standard Model (T)
National Star Model (S)
National Ultrathin Model 504
National Vanity Model 506
Mfr. NATIONAL HEARING AID LABORATORIES
106 S. Seventh St.
Philadelphia, 6

Otarion Model E-4
Otarion Models F-1, F-2 & F-3
Otarion Models G-2 & G-3
Mfr. OTARION, INC.
4757 N. Ravenswood Ave.
Chicago 40

Paravox Model D "Top-Twin-Tone"
Paravox Model J (Tiny-Myte)
Paravox Model XTS ('Xtra-Thin)
Paravox Model Y (YM, YC & YC-7) (Veri small)
Mfr. PARAVOX, INC.
2056 E. Fourth St.
Cleveland 15

Radioear Permo-Magnetic (Multipower)
Radioear Permo-Magnetic (Uniphone)
Radioear All-Magnetic Model 55
Radioear Model 62 Starlet
Radioear Model 72
Mfr. E. A. MYERS & SONS, INC.
306-308 Beverly Road
Mt. Lebanon
Pittsburgh 16
Distr: RADIOEAR CORP.

Rochester Models R-1 & R-2
Mfr. ROCHESTER ACOUSTICAL LABORATORIES, INC.
117 Fourth St. S. W.
Rochester, Minn.

Silvertone Models J-92 & P-15
Mfr. JOHNSTON HEARING AID MFG. CO.
708 W. Fortieth St.
Minneapolis 8
Distr: SEARS, ROEBUCK & CO.
925 S. Homan Ave.
Chicago 7

Solo-Pak Model 99
Mfr. SOLO-PAK ELECTRONICS CORP.
Linden St.
Reading, Mass.

Sonotone Models 700, 900, 910, 920, 925, 930 & 966
Mfr. SONOTONE CORP.
Elmsford, N. Y.

Super-Fonic Hearing Aid
Mfr. AMERICAN SOUND PRODUCTS, INC.
1303 S. Michigan Ave.
Chicago 5

Televox Model E
Mfr. TELEVOX MFG. CO.
1307 Sansom St.
Philadelphia 7

Telex Models 97, 99, 200, 300-B, 400, 500 & 1700
Mfr. TELEX, INC.
Telex Park
St. Paul 1

Tonamic Model 30
Mfr. TONAMIC, INC.
12 Russell St.
Everett 49, Mass.

Tonemaster Model Royal
Tonemaster Cameo Model
Mfr. TONEMASTER, INC.
400 S. Washington St.
Peoria 2, Ill.

Unex Midget Models 95 & 110
Unex Models 200 & 230
Mfr. NICHOLS & CLARK
Hathorne, Mass.

Vacolite Models J & J-2
Mfr. VACOLITE CO.
3003 N. Henderson St.
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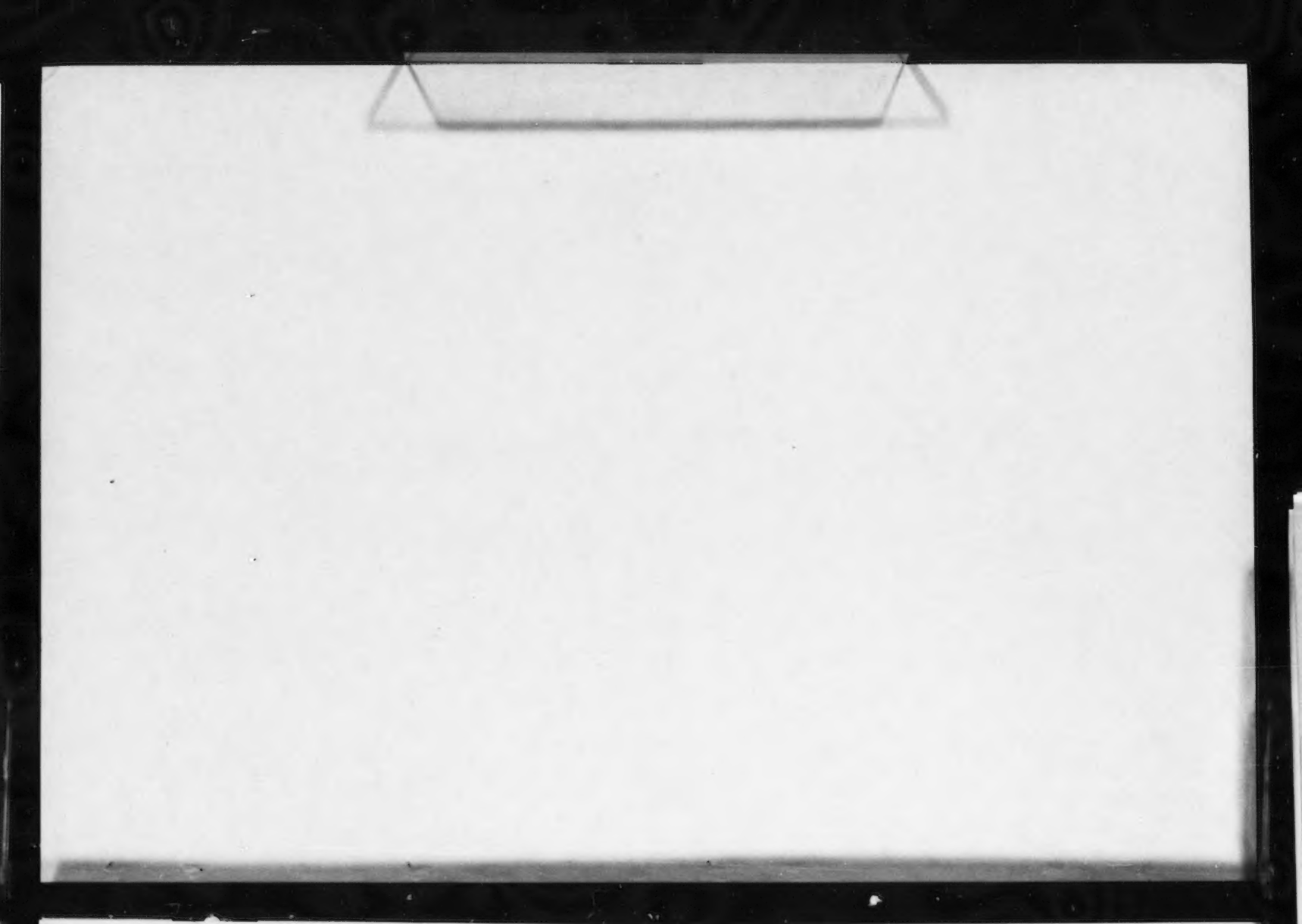

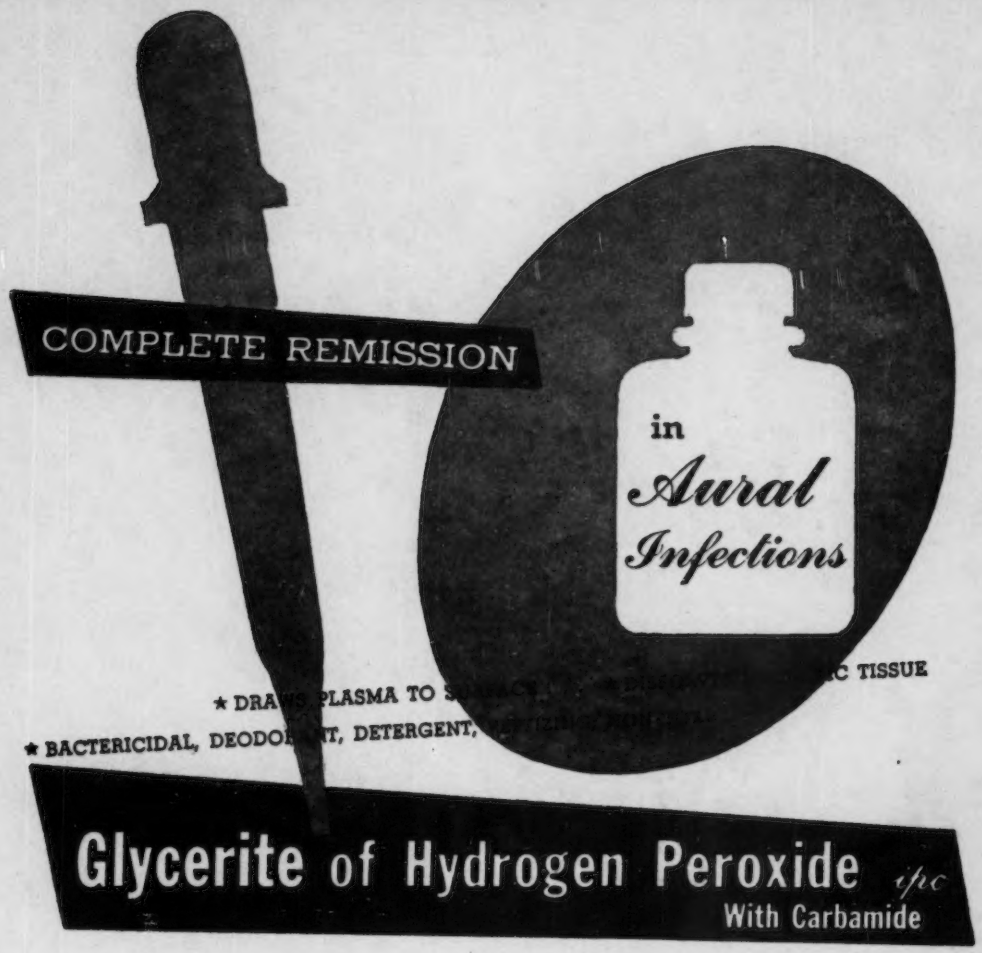

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Arch. Otolaryngol., 43:605, 1946.
E., E., N., & T. Mo., 26:27, 1947.
Laryngoscope, 56:556, 1946.
New Eng. J. Med., 234:468, 1946.
Annals of Allergy, 4:33, 1946.
J. A. Ph., A., (Sc. Ed.) 35:304, 1946.

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